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SOMEWHERE**

**by RANDALL
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science
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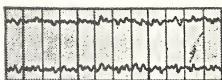


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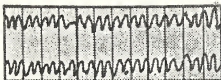
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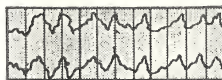
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THE ORIGINAL SCIENCE FICTION STORIES

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Volume 8

Number 5

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AUTHOR, AUTHOR!

RANDALL GARRETT first appeared in science fiction magazines in 1944; he showed up again in 1953; but it wasn't until 1955 that he began producing in earnest. Since then, he's become one of the real "names", and is one head of the famous "two-headed author, Robert Randall". He's been a chemist and a marine, and lists Savoyardism, Versification, and Crossword Puzzles among his hobbies.



ISAAC ASIMOV, known and loved for over a decade for his fiction, has recently made a second reputation for himself in science fiction as an author of articles of fascinating aspects of science which just don't quite fit the *Scientific American*, but go very well in the better science fiction magazines, judging by reader reactions.

RICHARD WILSON is one of the many well-known authors of today who first became known to science fictionists as a fan and amateur publisher. His *Science Fiction Newsletter* was among the first, and definitely one of the best liked publications of its type.



ROBERT A. MADLE is another oldtime fan turned professional, except that he has never turned his hand to professional science fiction writing! His speciality is the field of the enthusiast for this type of fiction, and his reputation is such that he was chosen to represent American fandom at the 1957 World Convention in London, expenses paid.



The natives on this world were friendly; they called Earthmen their "Starborn Brothers", and declared that they themselves were Star-descended. Had they fallen from a mighty state of civilization, as their present aspect suggested?



FAR FROM SOMEWHERE

Novelet

by Randall Garrett



illustrated by FREAS

Beauty, and damned near everything else, is in the eye of the beholder.

— *The Idle Worshippers*

TECHNICALLY, the sun had no designation other than the number assigned to its Galactic co-ordinates and its classification as an M2 red giant; the majority of the personnel of the Interstellar Exploration Service referred to it as "Barton's Star", because a man by the name of Barton

had found the planet that revolved around it. But anthropologists stationed on the little planet in the Lesser Magellanic Cloud, thirty-thousand light-years from home, called this sun "Old Bloody-blob" and let it go at that.

There was no better name for it.

Nor could the anthropologists have picked a better name than Hell for the planet itself. Slightly smaller than Earth, Hell circled slowly in



its orbit, seven hundred million miles from the center of its huge primary, and not quite six hundred million miles from its tenuous, undefined photosphere. Even at that distance, Old Bloodyblob filled nearly thirty degrees of the sky.

OLD BLOODYBLOB was not hot—not as stars go. His surface was a dull orange-red; you could look at it directly, with the naked eye at high noon, without discomfort. But Hell itself was a little too close to that monstrous, red-hot vacuum to be entirely comfortable. Old Bloodyblob didn't radiate much light per unit surface area, but his total heat output was high enough to keep even the temperate regions of Hell well into the eighties on a cool day, and considerably above that when it got hot. The temperature, plus the vermillion illumination, made Hell a reasonable reproduction of its medieval namesake.

In spite of the air conditioned buildings of the Anthropology Center, Cristina Cefalu wouldn't have stayed on the planet more than five minutes if her only inducement had been salary.

She was young, not yet thirty-five, which left most of her quarter-millennium life expectancy ahead of her. She was beautiful; her Mediterranean ancestry, combined with generations of genetic selection, had produced a girl

with almost blue-black hair and a figure that would have done justice to any calendar. She had money; her father's backing and her own investments had rolled several millions into her personal account, and there was no indication that the process would stop in the foreseeable future. In view of all that, any normal girl her age would be on Earth, or Nimrod, or one of the other civilized planets, having the time of her life.

And that's exactly what Cristina Cefalu would have been doing except for one thing: insatiable curiosity. Add to that a Scholar's Degree in anthropology, and the fact that Hell was the home of the first intelligent alien ever discovered by Man, and you have the reason for Cristina's being on Hell.

It also accounted for part of her anger with Jon Layt, the Field Co-Ordinator. But Cristina had peculiar ways of showing—or not showing—her anger.

SHE WALKED into Layt's office one morning, after five months of Hell, and put a sheaf of papers on his desk. "There are the translations you asked for. I think we're beginning to get the hang of their language."

Layt, a heavy-set, middle-aged man in his late eighties, muttered a brusque "Thanks", picked up the sheaf and began leafing through it.

"I still don't get it," he said

after a moment. "These people have a definitely analytical language—almost no trace of inflection—and they've got such an extensive vocabulary that there are only a few homonyms or synonyms."

"And that's not *kosher* for a barbaric language," Cristina supplied.

Layt raised his head from the papers and looked at her. "*Kosher*? Is that one of the native words?"

"Hardly. One of the old Earth tongues. I should have said that you don't think it's proper for the Zenos to use such a language."

LAYT SCOWLED and looked back at the sheaf. "What do *you* think, Miss Cefalu?"

"I think you're right. I don't think they're barbarians." She'd said that before, in other ways, and she intended to keep hammering it at the Co-Ordinator until he accepted it.

Layt sighed deeply. "Miss Cefalu, I understand your eagerness to make a name for yourself on this project. I'm sure all of us would like to go down as discoverers of some new facet of the cultures of *xeno sapiens*. But, please—let's not allow any wild theories go to our heads."

Cristina smiled sweetly. "Scholar Layt, you're perfectly right; I do have a pretty wild theory. What is it that

makes a theory wild, though?"

He narrowed his eyes. "Misinterpretation of data."

"Or not enough data," Cristina added.

"Or not enough data," Layt agreed. "Look, Miss Cefalu, I know what you're leading up to. The answer is *NO*. Capital *en*, capital *oh*. It's dangerous out there—" He waved his hand in a gesture which took in the whole planet of Hell. "—and I'm not going to risk getting you killed."

"None of the field expeditions has lost a man yet, *Scholar* Layt." She laid heavy emphasis on the title.

"That's because they're men, Miss Cefalu; they're full-grown, strong, alert male human beings. Even so, four of the men are in the hospital right now. I don't want you killed."

HER SMILE became sweeter. Like saccharine, there was a bitterness behind the dose. "Layt, I didn't come here to punch data into translation computers; you could have grabbed a technician for that. I want field work." She had dropped the title completely.

Layt said nothing for a moment; he simply tapped his fingers on the desk and looked at her. Then he reached over to one side and handed her a tape spool. "Bardok says this is important, Miss Cefalu. Would you get on it right away?"

Cristina didn't even look at it. "Field work," she repeated.

The Field Co-Ordinator held out the tape with an unwavering hand. "Miss Cefalu, when we have sufficiently organized this sector, when it is safe for you to leave the compound, then—and only then—will you be assigned field work."

"And by then it will all be picked over by everyone else." She took the tape from his hand. "Very well, *Mister* Layt; I'll go on about my work."

Layt's face took on a peculiar expression; it was the first time in years that anyone had called him *mister*. He wondered why the girl had done it. It never occurred to him that she might not like being called *miss* instead of *scholar*.

CRISTINA headed out the door and back down the hall toward her own office, grinning to herself, now that the Co-Ordinator could no longer see her face. She knew why Layt thought the way he did; he had been well in his fifties before he had earned his coveted Scholar of Science degree, and the idea that a woman could get a Sch. Sc. before she was thirty-five set up a block in his mind that was hard to get around.

There was more to it than that, she knew. She was perfectly well aware that her father had pulled strings to get

her on this expedition, and that Layt regarded her as a political appointee, not a scientist. Her father's interference had made the Co-Ordinator furious.

What Layt didn't know was that it had made Cristina even more furious.

Thinking about it angered her; and by the time she actually reached her office, her grin had faded, to be replaced by the odd, expressionless look that her face acquired when she was angry. It made her look like one of those expensive modeling robots used in the clothing centers.

She slid open the door to her office and strode across to her desk.

"Another argument with Scholar Layt?" asked a soft voice.

The voice brought Cristina out of her introspection. She turned her head toward the other desk in the room.

SCHOLAR Melissa Bjornsen, who shared the office with her, was smiling gently at Cristina Cefalu, a knowing look in the bright blue eyes. Those blue eyes were the only young part of Scholar Bjornsen's face; her skin was a weathered brown, filled with lines that reminded Cristina of a piece of paper that had been waded up tightly and then smoothed out again. The hair was gray-silver, except at the temples,

where it was pure white. Her nose was lean and long and bony—almost fleshless. Her ears seemed much too large for her head, in spite of the sweeps of snowy hair that covered their upper part.

Cristina smiled back. "Scholar Layt has appointed himself my Father Protector and Lord Guardian. Poor, helpless, little Crissy dassent go out of doors because the dear child is completely incapable of taking care of herself. Blah!"

The old woman's soft smile didn't change. "It's the cycle you're living in, my dear. Two centuries ago, when I was your age, we were going through a feminine power period. Women were men's equals and superiors. Then they began to put us on pedestals, as it were; we were too exalted actually to stain our dainty little hands with work."

She tilted her head back and looked at the ceiling. "Someone once said—a man, I imagine—that if a man once allows a woman to become his equal, she will thenceforth be his superior. But, on the other hand, if a woman allows herself to become man's superior, she will soon become a coddled goddess. She will receive great honors, and even a sort of remote adoration; at the same time, she loses real love, and any real power she may have is stripped away from her. She becomes a remote,

ethereal being who is to be worshipped from afar and protected from the realities of the world. From that moment on, she slides downhill."

Cristina slammed the tape reel down on her desk and seated herself on the chair. "That's exactly where we are now."

MELISSA BJORNSEN shook her head. "No, Crissy; not at all. We've passed that stage. Women are now demanding equal rights; we're climbing back up. But we're still suffering from the hangover of eighty years ago, when we were goddesses. Men still think we have to be protected. But we'll win in the end, and the cycle will start all over again, for the thousandth time."

"Men!" Cristina said.

"Don't blame *them*," said Melissa. "It's our fault. We demand too much. We expect equal rights with the men, but we also demand the goddess-worship at the same time. We want to be able to do anything a man does, and be treated as a superior being. We also like being deferred to and coddled and petted. We want to be weak and strong at the same time; so we have this perpetual oscillating cycle that we'll never be able to get off of."

"There's some way of stabilizing it," said Cristina positively. "Some smart woman will work it out eventually."

Melissa chuckled softly and shook her head slowly. "I hope not. And I don't think it will happen—at least for long. We couldn't stand it."

"Why not?"

THE OLD woman's voice took on a touch of sarcasm as she said: "In case you hadn't noticed it, Scholar Cefalu, women are constructed to be cyclic in nature. Men are cyclic, too, but not to the extent we are. They have it imposed on them from the outside, not from the inside. They can escape it, or change it; we can't."

"I know," Cristina said tiredly, "I know. But that still doesn't help me get anything out of Layt." She flipped open the computer feed-in panel in her desk and inserted the reel of tape. "All he wants me to do is hammer away at the language, but he doesn't pay any attention to what we're getting from it." She punched a button, and the tape began to whir. She closed the panel. "Let it chew that over for a while; I'm going for a walk."

She got up, went over to her closet, and pulled out her zipsuit. As she climbed into it, Melissa said: "Crissy, what are you trying to prove by going outside without permission?"

Cristina stopped for a moment and looked at the older woman oddly. "I've told you, Melissa; I'm convinced that

xeno sapiens was, not too long ago, a lot more civilized than he is now. Layt and the others think that the Zenos are just high-grade barbarians, that they've just climbed up from savagery. I think that they've fallen from a civilized stage, back into barbarism and are just beginning to climb out of it again.

"That's the only way the similarities of the languages of Hell can be explained; it's the only way their large population can be explained."

Scholar Melissa Bjornsen's soft smile came back. "That's not what I mean, Crissy. What are you trying to prove to *yourself*? For over a month, now, you've gone out on these field expeditions by yourself; you've uncovered plenty of useful data. You know, damned good and well that Layt can't do a thing to you if he finds out, yet you keep trying to get his permission. What are you trying to prove?"

Cristina grabbed her camera from the shelf, checked the loading, and then reached for her Owens gun. "I'm not trying to prove anything that way, Scholar Bjornsen," she said evenly, trying to keep the anger out of her voice. "I'm just trying to get data, that's all."

II

XENO SAPIENS, the "wise strange ones", were humanoid to a

high degree. Little oddities—such as hands with only three fingers and an opposed thumb, and the absence of hair—were easily overlooked. The eyes and ears were what gave the otherwise human face an alien cast.

It is not true that the pointed, demoniac ears of *xeno sapiens* contributed to naming the planet Hell; the planet was named long before the natives were seen. The ears were pure co-incidence.

The eyes were as odd as the ears. The upper and lower lids were of equal size; and when a Zeno squinted—as he did in a bright light—the lids almost closed over the bulbous eyes, leaving only a narrow slit between them, a slit that canted upwards toward the ear-tips at almost a forty-five degree angle.

CRISTINA CEFALU was used to their appearance; but when the figure of 'Iasifa appeared suddenly from around the corner of the temple building, she almost jumped. In the crimson light of Old Bloodyblob, 'Iasifa looked as though he'd just stepped out of Milton's "*Paradise Lost*".

He stopped and bowed from the waist. "I am sorry I failed to arrive synchronously with my Starborn Sister," he said formally. "Please excuse my delinquency."

"It is I who should abase myself for appearing early,"

Cristina replied in the same whispering, fluid tongue. "I ask your forgiveness, Star-descended Brother."

'Iasifa was clad in a half-barbaric style; he wore the kilt that was common to the Zenos of this area, a bead necklace, and a fur stole draped over his left shoulder. The stole indicated nobility, and the necklace, with its odd pendant, indicated a religious connection. 'Iasifa wasn't exactly a priest, in the ancient, sacrificial sense of the word; he was a teacher, a rabbi, a leader of a congregation.

"What would my Sister like to see today?" he asked.

"Whatever you would show me, my Brother," Cristina answered.

"Then come." He turned and led the way down the smooth-worn, block-paved street.

The Zenos in this part of Hell had a civilization roughly equivalent to that of the Aztec or Mayan civilizations of Earth in A.D. 1450, or that of the Fertile Crescent in the eighth century B.C.—small cities, fairly good roads, and plenty of farmland surrounding them. There was nothing particularly unusual in that.

IT WAS THE discrepancies—that bothered the anthropologists: The fact that the Zeno dialects were so similar that they could only have sprung from a world-wide common language; the fact

that their mythology seemed to have a common source. These, and several other odd twists, indicated that at one time there must have been fast transportation and rapid communication all over the planet. But there weren't any physical traces of such communications.

For a while, Cristina had toyed with the idea that the Zenos had evolved on some other world, had come here in interstellar vessels, colonized, and lapsed into barbarism. But that didn't hold water; the species *xeno sapiens* was closely linked to the other life-forms indigenous to the planet. They had evolved on Hell; of that there could be no doubt.

On the other hand, Zeno mythology insisted that they had come from the stars. They had accepted the human beings as their "brothers", because the humans had come from the sky. The physical differences meant less than nothing to them in comparison with a presumed common origin. The humans were "starborn", the Zenos were "star-descended"; it was as simple as that.

Unfortunately, such mythology meant nothing. There had been races on Earth in the past who had insisted that they had come from the heavens. The Japanese had called themselves the Sons of Heaven; the Chinese had linked themselves with a Ce-

lestial Kingdom; and other tribes had traced their ancestry to the sea or to a particular mountain or volcano. None of these contentions had had any basis in fact.

On the other hand, none of them had become a world-wide belief.

CRISTINA followed the briskly-moving figure of 'Iasifa through the crimson-drenched streets of the city. All around them, other Zenos passed by with hardly a glance at the alien in their midst. When they did bother to notice, it was always with a polite gesture, the two-handed wave of friendship.

Cristina wondered where 'Iasifa was taking her this time. She had already seen most of the city; she had learned more about the language and customs than any other anthropologist on the base. She had followed 'Iasifa to the market places, to the art centers, and to the schools where the children were taught. She had even been permitted to watch a session of the Court of High Justice, although she had decided not to stay for the execution of the condemned thief afterwards.

She had never asked 'Iasifa to show her anything in particular; she had let him lead the way. In the first place, she didn't know what she was looking for, exactly; in the second, she knew that the

regular teams would be covering anything normally investigated in the course of anthropological research on a new culture.

THEY WERE heading toward the center of the city; perhaps, she thought, they might be going to the palace again, although 'Iasifa had already shown her most of that building. The temple, maybe? No. Impossible. That was the one taboo place; no human being had tried to go in there, and every man at the Center had been instructed to stay away from it—for a while, at least.

In the few months since the humans had come to Hell, nine Zenos had been publicly drawn and quartered for "desecrating" the temple by their presence. All of the condemned had been members of one of the nomadic tribes, or one of the hill people who lived within a few hundred miles of the city. "Strangers" weren't allowed inside. Period.

At the market place, near the big square at the center of the city, 'Iasifa stopped at one of the little shops.

"Your pardon, Starborn Sister," he said, "but I must buy some things for the temple."

Cristina nodded wordlessly and stood nearby while 'Iasifa bought a baker's dozen of the long torches that were used for indoor illumination in the

buildings of the city. These were made from one of the local plants, and burned brightly in the planet's atmosphere, giving a bright, yellowish light.

When 'Iasifa had collected his purchase and bundled them under his arm, he turned to Cristina and said: "Come, Sister. You will think me *ghonathi*, I know, but I must show you."

"I WILL THINK only the best of you, my Brother," Cristina replied. "*Ghonathi*" couldn't be directly translated, but it meant something like "conceited, overly proud, and arrogant when I have no right to be anything but humble and lowly". The Zenos had queer ideas of pride; their worst was always shown first. A Zeno wouldn't think of buying anything fancy for himself; and when he received it as a gift from another, he would only show it to his best friends. To display it to a stranger, or a nodding acquaintance, would be *ghonathi*.

Even carrying humility too far was *ghonathi*; one had to know precisely where to draw the line.

The two beings, human and alien, walked side by side across the great square. Suddenly, Cristina stopped, looking ahead of her. "Where are we going, Star-descended Brother?" She had a queer feeling inside.

'Iasifa stopped and looked at her. It was the first time the girl had ever questioned him about their destination. "Why—we go to the temple, Starborn Sister."

"The... temple?" That's what she thought he'd said.

"You don't want to go?" he asked. There was just the faintest hint of wounded pride in his voice. "I know that none of the Starborn Brothers have been interested, but I thought perhaps you..." He trailed off in confusion, then: "Naturally, I realize that all of the temple is known to you, but..."

"It's not that, my Brother," Cristina said, thinking fast, "I would be most happy to accompany you—if my presence would not desecrate the temple?" It was half a question.

A rumbling chuckle came from the Zeno's throat. "Ah! My Sister jests! One would think you were a stupid hill dweller, or a filthy and ignorant nomad. Come, my Sister." He turned his back to her and walked on toward the temple, chuckling over what he assumed to be a joke.

Cristina followed, somewhat dazed. Every human being on the planet had been avoiding the temple like the plague, and now she was being led right into it!

A trap of some kind? Did these people, perhaps, practice some sort of sacrificial rite? According to all indica-

tions, they didn't; but there was no use taking chances.

Cristina unostentatiously unslung her Owen gun and held it at port arms as she entered the temple.

III

HALF AN hour later, she was doing her best to keep from laughing.

"...and these, of course, are the ancient books," 'Iasifa was saying. "No one can read them, but they are kept merely as curios. And over here..."

Temple! Cristina was thinking. That's what we get for depending on a machine to translate for us! Somebody made an error right at the beginning, and the translator robot correlated the other words to fit the original mistaken concept!

And the error had kept them out of this place for months!

Almost automatically, she retranslated.

Not temple. Museum-library would be a better translation.

Not rabbi or minister or priest. Librarian, custodian, or, maybe, teacher.

'Iasifa was a keeper of the Archives.

HERE WAS the whole history and cultural achievements of the Zenos; right here, where humans had not dared to enter lest they provoke the natives.

It was to laugh.

"You smile, my Sister? Is our heritage then so childish?"

"You misunderstand, my Star-descended Brother. I smile because I am pleased. Very pleased."

They walked on through the halls of the building, and the silence was broken only by their footfalls, the voice of 'Iasifa, the whisper of Cristina's recorder, and the clicking of her camera as she shot roll after roll of film.

At last, 'Iasifa said: "And now, of course, we shall see the halls of the Star-born Bretheren."

"Of course," said Cristina warily. "I will follow, my Brother."

Again, she casually unslung her Owens as she followed the elderly Zeno down a torchlight stairway that spiraled down into the depths of the "Temple".

AT THE BOTTOM of the spiral stairway, 'Iasifa lifted the last torch from its socket and held it in his hand.

"The door to the cliff is this way," he said. "We have sealed it, naturally; otherwise, the barbarians would try to get in through that way. It is guarded, too, but the hill men are clever."

Cristina was beginning to get the picture now. She had often seen the four guardsmen standing on the narrow ledge of the high cliff that formed one edge of the city,

but she had never seen any doorway into the cliff. She had been told that the guardsmen watched for the hill men and nomads, but she—and all the others—had assumed that they were simply lookouts for the city. A mistake, evidently.

'Iasifa led the girl along a tunnel that ran toward the cliff face. Along the walls of the tunnel were numerous crude drawings. It took Cristina several minutes before she could nail down in her mind exactly what it was they reminded her of.

They were quite similar, in an alien way, to the ancient cave-paintings that had been discovered centuries ago on Earth—relics of mankind's prehistoric past. And the symbols on the sides of the tunnel bore a resemblance, too, to the hieroglyphs of the ancient Egyptians, although they were not so stylized. They had more realism.

"There is the door," 'Iasifa said, matter-of-factly.

Cristina nodded slowly. The place may have been a door once, but it had been bricked over and cemented; it was now more of a wall than a door. No one could get through it easily; it would take days of work—or a good-sized chemical bomb.

"And here is where the Noble Ancestors came to stay."

'IASIFA pointed toward another tunnel that branched off from the one they were in.

It was evidently just another extension of the natural cave which formed the "basement" of the building above. As far as Cristina could tell, the cave itself had been hollowed out, geological ages ago, by the constant flow of underground seepage. The building overhead had been constructed over one of the shafts that descended into the tunnel, and the spiral staircase had been constructed in the shaft.

Cristina followed the old Zeno down the tunnel, which was lined with more of the odd pictures—pictures which are meaningless to her, except as examples of primitive art.

The walls were cool, and, as they went farther back into the cliff, they became dewy with moisture, which glittered under the hot yellow light of the torch in 'Iasifa's hand.

Then Cristina saw daylight ahead. At least, she thought it was daylight at first; it looked like the blue of Earth's sky shining through an opening at the far end of the tunnel.

Then she realized that it couldn't possibly be daylight; Old Bloodyblob's light would never look that blue.

Not until they turned the bend at the end of the long horizontal shaft did Cristina realize what it was that had caused the light.

THE ROOM was utterly unlike the rest of the cav-

ern. Instead of rough, natural walls, this room was lined with some sort of smooth plastic. Near the entrance stood a statue, a huge carving hewn out of the solid rock wall, holding in one hand a great, glowing crystalloid. What shocked Cristina was the fact that the crystalloid was easily recognizable as an ordinary Eterna-glo lamp!

She stepped up and looked at it curiously. The glow unit was held carefully in the tips of the fingertips of the statue. Evidently, the power was fed in through two of the five fingertips that touched its surface. The small power pack must be inside the hand itself.

'Iasifa stood quietly by, holding the glowing torch while Cristina took snapshots of the statue, changing films and filters to get good color range over the entire spectrum.

The statue itself was well-done, but was obviously heroic in style. The Zeno it seemed to portray was longer of skull and more pointed of chin than any living Zeno that Cristina had ever seen, and it wore clothing that was obviously more advanced than that of the city's present inhabitants.

Cristina wanted desperately to ask 'Iasifa how long the statue had been there, but she knew there would be no point in it. The Zenos had a poorly-developed sense of time; there were no seasons to

speak of, because of the slight tilt of the planet's axis and the tremendous length of the year. A "day" lasted a little less than nineteen hours, and any one day was very much like another. The Zenos had nothing cyclic to measure time against.

Frowning, the girl turned her attention to the rest of the room.

IT HAD OBVIOUSLY been designed to be lived in, although the relative crudeness of the furniture was not in keeping with the plastic-sheathed walls. On the other side of the room, another door led into a second well-lit room, and beyond that there was another opening. All of the rooms were lit by Eternaglo lamps hanging from the ceiling or set in niches in the walls. Only the one at the entrance was fancifully arranged in a piece of statuary; all the rest were quite ordinary in their settings.

"Let's go back in a little further, my Brother," Cristina said. "I would like to see the rest of the rooms."

Iasifa looked astonished. "My Sister knows that I can not go beyond this door." Then he smiled and handed her the torch. "But you, being Starborn, may go. Please return quickly, though; without the torch, I will be cold."

Cristina had noticed the faint chill in the air; the body temperature of *xeno sapiens* was a few degrees above that

of *homo sapiens*; so they could withstand the heat of Old Bloodyblob a little better, but a comfortable temperature for humans was somewhat cool for them.

"I'm not cold," Cristina told him, handing back the torch. "I'll not need the torch."

He nodded silently while she turned and went on into the set of apartments carved into the rock of Hell.

IT WAS OBVIOUS that no one had entered them for a long time; everything organic had long since rotted away, and the metals had corroded into their respective oxides, hydroxides, chlorides, and carbonates. In one of the rear rooms, the plastic wall had cracked a little, allowing water to seep through, and there was a small deposit of limestone below it; an embryonic stalagmite was forming. How long did that take? Centuries? She didn't know.

Of all the things that had been in the apartments, only the glass, ceramic, and plastic articles were left. Only the tough oxides of silicon and aluminum, and the fluorocarbon polymers of the plastic had been able to withstand the years of erosion and decay.

By the time Cristina was through inspecting the place, she had shot up all the film she had brought with her and was becoming angry with herself for not bringing more.

Well, she'd simply have to come back tomorrow. She headed back towards the door where she had left 'Iasifa.

He was standing there quietly, his eyes wide open, instead of slitted closed as they usually were. He was shivering a little. The torch had long since burned itself out, and there was only the stub lying on the floor.

"I'm sorry I stayed so long, Star-descended Brother," she said. "I didn't realize how long I was in there."

I'ASIFA blinked his eyes. He looked oddly blind. "It is nothing, my Sister," he said softly. "But I hope you can lead us out again." He paused, a queer smile on his face. "My eyes, you understand."

"What...?"

He gestured with one hand. "If I stay too long, I will be permanently blinded."

Cristina glanced hurriedly around. "Blinded? Why? The light..."

"Why? I do not know, my Sister. This has always been so; if any of our people come into this place, their eyes become dim, and they can see no longer. But I stayed out here; I did not go inside. And it hasn't been too long, I think."

The girl grabbed him by the hand. "Come on, let's get out of here, my Brother." She half dragged him down the tunnel for several yards; then, as the light behind them grew dim, she pulled out her tiny

flashlight and threw its beam on the floor.

There was a gasp of relief from 'Iasifa. "Ahh! My eyes are not entirely blind! I can see the light you have—but dimly."

"Your eyes are in pretty bad condition, even so," Cristina told him bluntly. "This light is quite bright." Then she said: "Perhaps if you closed your eyes they'd feel better."

"It may be so." He put his free hand over his eyes and pressed it tightly over them, squeezing the lids shut, while Cristina guided him, holding his other hand. She realized, suddenly, that it was the first time she had ever touched 'Iasifa.

IT TOOK nearly ten minutes for them to get to the foot of the spiral stairway that led upwards to the library-museum.

"Here are the stairs," Cristina said, shutting off her flash. The flickering glow of the hot torches illuminated the stairwell; they weren't the little hand torches, but long-burning monsters. "How are your eyes?" she asked as they started up.

'Iasifa dropped his hand and cautiously opened the heavy lids. A beatific smile spread over his face. Quite suddenly, he knelt on the stone steps, took the girl's hand in his, and pressed it to his forehead. "I can see!

Thank you, my Starborn Sister."

Cristina crimsoned in embarrassment, "I didn't do anything; I don't even know what was wrong. Come, my Brother; let's go on up."

They went on up, but 'Iasifa didn't lose any of his look of almost dog-like devotion.

Cristina could understand him a little. He had gone blind somehow, and then recovered his sight. That would make anyone happy.

But he had lost it in the first place because he had stayed at his post while she wandered around in the strangely anachronistic rooms, and he had regained it through no intervention of hers. He made her feel guilty, and her embarrassment irritated her.

At the top of the stair, 'Iasifa pushed open the heavy wooden door and was immediately greeted by another, somewhat nervous-looking Zeno who immediately burst into rapid speech. Cristina could only get a part of it.

"What did he say about the other Starborn?" she asked 'Iasifa sharply.

"Your Brothers have surrounded the building," he said. "But we can't seem to find out what they want. They speak the tongue poorly."

"I'll bet," Cristina said. "Well we'll just find out what in the devil they want." She strode toward the door.

AS SHE NEARED it, she heard a voice shouting in very bad Zeno: "We know she has violated your library-museum, but we must insist that you turn her over to us for punishment!"

It was Scholar Layt.

Cristina stepped through the door and said sweetly: "What sort of punishment do you think I'll get, Scholar?" She knew that Layt was still translating the Zeno word as "temple" instead of "library-museum".

Layt, and twelve of the other men, were standing outside the door, on the ground before the flight of stone steps that led up to the entrance.

The Co-Ordinator gaped in surprise, snapped shut his mouth, then opened it again to say: "I'll have to report you for this, Miss Cefalu!"

"For what? For leaving the compound of the Center without your permission? Since when is that a crime?"

"Not that," snapped the scholar. "For forcing one of the autochthons of this planet to take you inside a place of worship at the point of a gun. You were seen marching him in several hours ago. Naturally, we assumed that you had been overpowered and punished, but..." He checked himself and finished: "At any rate, I'll see to it that you're reported for that action, and I'll see to it that you are removed from

this planet before you permanently damage relationships between the two races." Then, with an authoritative frown: "And now, you're coming back to the Center, young lady!"

CHRISTINA smiled coldly. "Oh, yes, indeedy! I'm coming back to the Center, all right. But I warn you, *Mister* Layt; if you send a report like that back to the main Galaxy, you'll make a laughing stock of yourself from here to the Andromeda Nebula."

Just then, 'Iasifa stepped shyly out the door. He looked at the men, then took Cristina's hand. "What is it, my Sister?"

"It is nothing, my Brother. An oversight on my part. I forgot to tell them where I was going, and they were worried. Everything is all right."

Then she turned and walked down the steps toward the other anthropologists. "Let's go, Layt, and quit bothering these people."

IV

SCHOLAR Melissa Bjornsen looked very much like someone's kindly old grandmother, but her language was far from kindly, and even bordered on the profane.

"...and I knew he was a bully. But I never thought he'd pull a stunt like this!"

Cristina just smiled. "Melissa! You're frothing at the mouth!"

"Damn right I am! I'm mad!" She slapped her hand on the desk, covering the report that Scholar Jon Layt had filed on behalf of the Magellan Research Expedition. "In the two months since he's had your data from the Zeno's library, he's managed to take every bit of credit away from you! You were the one who suggested that *xeno sapiens* was once civilized and is now climbing out of barbarism for the second time; you were the one who sweet-talked your way into the 'temple' while he was proclaiming it taboo. And he gives you no credit whatsoever!"

"Believe me, Melissa," Cristina said, "I don't want to take any credit whatsoever for that theory."

Melissa Bjornsen's eyes narrowed. "You have something up your sleeve, Cristina Cefalu. What is it? Give!"

"Me?" Cristina looked innocent.

"You." The older woman got up from her desk, walked across the room, and locked the door. Then she turned the interferer on.

When she sat down again, she said: "I don't think Layt would try to spy on us, but I wouldn't put that past him, either. Now, you've been entirely too happy for a young girl who's just had the discovery of her life pulled out

from under her. This could make you professionally; what do you know that keeps you from slapping Layt down?"

"I've already slapped him," Cristina said. "I've got him where I want him, and he can't squirm out. He's not going to send that report in; he's in his office now, doing a hasty revision—and sweating over it. But I'm keeping that report, just in case he tries to get funny again. Which I don't think he will."

"I don't get it," Melissa admitted. "What did you do?"

CRISTINA leaned back in her chair and cocked her trim legs up on the edge of her desk. "Scholar Bjornsen," she asked didactically, "what is the science of anthropology?"

"Anthropology?" Melissa blinked. "According to the way I've heard it," she said with a touch of sarcasm, "it's the study of Man."

"*Homo sapiens*," said Cristina. "Precisely. Then why, may I ask, do we send anthropologists to study *xeno sapiens*?"

Melissa made a *moue* which emphasized the fine wrinkles in her face. "I suppose because we don't have any trained xenologists—yet. What would you have us be? Botanists?"

Cristina ignored that. "Melissa, how long has it been since any human anthropolo-

gist has studied a primitive race?"

"Why—uh—five or six hundred years, I guess. When was it that the Amazon Basin was finally civilized?"

"About that," Cristina agreed. "Will you admit that not a single one of us has any personal experience whatsoever in dealing with primitive man? And will you further admit that *xeno sapiens*, wise though he may be, is not Man?"

"Right on both counts, honey, but where does that get us?"

"WE'RE JUST a little slipshod, that's all. We've spent the past five or six centuries studying nothing but the variations in human culture on the different planets that Man has settled; we can run the variables through a computer and come up with an easy approximation in almost no time, because we know pretty well what Variable X and Condition Theta will do when added to Culture Type Seven. We know what kind of culture will result, pretty much, even if we can't predict what any group will do in a given instant."

"But, damn it, Melissa, that only applies to human beings!"

"We knew that when we came here," the old woman said.

"We knew it, but we didn't

practice it. We went right on looking for the same kind of variables that we'd look for on a century-old human colony. So we keep coming up with the wrong answers."

"And you think you have the right answers?" Melissa asked.

"I think so." Cristina took her feet off her desk and sat up. "I've got a tape here that I shot a few minutes ago when I talked to Layt. Watch it and tell me what you think."

She flipped a switch on her desk projector, and the wall tank sprang into light. "I had the pickup in my briefcase," Cristina explained. "I hope it isn't too muffled."

It wasn't. The scene that had taken place in Scholar Jon Layt's office was quite clear.

LAYT LOOKED up from his desk. His image wobbled uncertainly for a moment as Cristina moved toward the desk.

"You wanted to talk with me, Miss Cefalu?" came the Co-Ordinator's voice.

The image steadied as the briefcase was placed on a nearby desk. Cristina's image came into the tank as she walked away from the pickup.

"Yes, Scholar. I just read the release of your findings to date—and the theory you propound." She settled herself into a chair.

"And what did you think of

it, Miss Cefalu?" Layt looked quite condescending.

"I used to think it was a nice idea. When I had very little data to go on, I liked it. But now that I know better, I don't."

Layt sat up in his chair. "I'm afraid I don't understand you, Miss Cefalu."

"Maybe I don't understand you," Cristina countered. "Just what is your idea of the history of *xeno sapiens*?"

Layt lifted an eyebrow. "I don't know what you're driving at, Miss Cefalu. I have been quite patient with your disobeying my orders, but..."

"No buts. Explain this stupid report." She tapped a dainty finger on the sheaf of papers.

Layt looked as though he were going to explode for a moment, but he seemed to think better of it. "It means just what it says. It is quite obvious that the Zenos at one time had a planet-wide civilization which, for some reason, sank back into barbarism or savagery."

"What do you base that on?"

LAYT SIGHED, and looked as though he were a harassed father explaining the facts of life to a ten-year-old.

"You saw the evidence. We've uncovered more of it in the widely-scattered cities on this continent. In every city, there is a museum—those buildings which we er-

roneously called temples. A natural mistake, I think, considering the way in which they are guarded from the depredations of the more savage members of the race.

"The books are quite obviously printed; the Zenos have no printing presses today. The caverns which were found beneath the buildings all contain plastic-lined rooms illuminated by light sources very similar to, but not identical with, our own Eterna-glo lamps. All these things indicate a rather high degree of civilization; I think you'll agree with that. Eh?"

"I agree. Go on."

Layt frowned. "The Zenos have a common language. Even the wilder tribes speak a bastard dialect of the tongue used in the cities. That automatically indicates a planet-wide form of communication. Eh?"

"I'll agree with that, too," Cristina stipulated. "After all, I told you that months ago."

"I do recall," Layt said coolly, "that you had some sort of idea along those lines; but since the data hadn't been collected yet, I hardly think it can be called a scientific deduction."

"Maybe not. Continue. What caused the downfall of this once-mighty civilization?"

"Disease, Miss Cefalu, disease. One of the common legends of this race is that of

a great plague which wiped out most of their people. I'm sure that when we finally decipher the ancient books, some mention will be made of it. I think..." He shrugged suddenly. "Miss Cefalu, the evidence is all down in the report. I suggest you read it and stop asking foolish questions."

"I HAVE read it, Scholar Layt," Cristina said evenly. "I think it's utter bunk. Trash, from beginning to end. Unscientific, forced, and lacking in data—data, I might point out, which is available to you, but which you are too blind to see."

Anger blazed across the Co-Ordinator's face. "I suppose you have evolved a much better explanation for the facts?"

"Much better," the girl said complacently. "I have one that explains *all* the facts."

"Indeed?"

"Oh, indeedy I do. Want to hear it?" She didn't wait for an answer. "In the first place, I must admit that my original guess was wrong. There never was a world-wide Zeno civilization. The Zenos are only a few centuries removed from the troglodyte stage; and, even so, they didn't climb out of it of their own accord. They didn't invent the printing press or plastics or Eterna-glo lamps."

"Those just happened, I

suppose?" Layt's voice had a sneer in it. "These things are natural phenomena, like the rocks and the seas?"

"NO. I'LL TELL you exactly what happened. Some centuries ago, there was one single group of civilized people on this planet. I don't know where they started here, but I imagine that we'll find out, now that we know what to look for.

"It's my guess that they were a people with a really wonderful philosophy—or religion, if you will. Within a short time, they had conquered the entire planet, subjecting the entire race of *xeno sapiens* to their will—and making them like it!

"These people knew how to make all kinds of things; they were at least as technically advanced as we are. But they had sense enough not to try to make *xeno sapiens* grow too fast.

"They taught them the rudiments of barbaric civilization, but they didn't force anything on them. Instead, they hid out in their little caverns, where they were comfortable, and acted as teachers—as brothers—to the natives. The Zenos almost worshipped them, but that sort of thing wasn't encouraged. The Zenos were taught that 'all beings are brothers', and were expected to act as such. It worked. Look at the way the Zenos act now; they

never feared us nor gave us any real cause to fear them.

"THEN SOMETHING happened. Perhaps it was a disease; but it didn't attack the Zenos, only their Star-born Brothers. The teachers died to a man, leaving the Zenos on their own.

"Naturally, some of them went back to the old way of living. They forgot the philosophy taught to them by their teachers and went back to being nomads or hill men.

"But a good many of them stayed in the cities they had been taught to build and kept the memory of their teachers as well as they could without having much of any kind of writing.

"As a result, the Zenos became what you see now."

Layt had listened to the girl talk with a half-amused expression on his face. He said: "May I ask what you base this fantasy on?"

"Yes. And I'll tell you. Do you have that report I made on my first trip into the caverns underneath the local library?"

"The one about 'Iasifa going blind? Yes. What about it?"

"Why did he go blind?"

Layt shrugged. "I'm not familiar with the physical frailties of *xeno sapiens*, but the biologists think it must have been some sort of hysterical blindness."

Cristina shook her head.

"No; he didn't go blind at all. He just couldn't see in the dark, that's all."

Both of Layt's eyebrows lifted this time. "In the dark? But you said that the lights were on."

"Yes. And that brings up another point. Did you notice anything about the statue that held the Eterna-glo lamp—the one at the entrance to the apartments?"

Layt nodded. "I did. That is very definitely a piece of Zeno art. It's well-done, but rather rude; obviously hand-carved. The lamp was placed in the hands by whoever carved it—which indicates that it was the Zenos who put it there, not some mythical group of teachers."

"Bosh. Any halfwit can put an Eterna-glo lamp into a statue if they already have the lamp. That's not what I'm talking about. Didn't you notice the fingers on that statue?"

"Ah—in what way?"

"There were five fingers on it, Scholar Layt. Five. And Zenos only have four!"

LAYT LOOKED exasperated. "Oh, really, Miss Cefalu! The primitive, as you well know, often tends to make his art somewhat teratological—exaggerated, out of proportion, and erroneous. What does that mean?"

"To me, it means that you're looking at it wrong. Sure, there will be errors; but

that statue is a symbol. It's a carving of the teachers, made from memory. It looks like a Zeno because primitives tend to make their artwork resemble what they're used to. But the original counterpart of that statue had five fingers, and he didn't look nearly as much like *xeno sapiens* as that. I'd almost be willing to bet that he looked a great deal like us."

Layt was frowning, but he didn't say anything.

"Look at the evidence," Cristina continued. "Why would the Zenos make Eterna-glow lamps? To see at night, you say? Damn it, Layt, a Zeno can't even see the light from those lamps, any more than you can see ultra-violet!"

"*Xeno sapiens* was evolved underneath Old Bloodyblob. That monster's light is poor in blues and violets and ultra-violets, but it's got plenty of reds and infra-reds.

"IASIFA couldn't see in that room because it was pitch dark to him. He could just barely see the redder light of my flashlight. The reason he was worried about being blinded is simply because those Eterna-glo lamps have a high ultra-violet output; he could have sunburned his eyes. Light which doesn't bother us would blind him; he's not used to even soft UV."

Layt looked vaguely wor-

ried. "Are you trying to say that there were human beings here before us?"

Cristina shook her head. "No; the teachers weren't human, either. They evolved on a planet with a bluer sun, but that sun was far enough away from their planet so that they were used to rather cooler weather than Hell offers.

Layt had a queer expression on his face. "Are you suggesting that some other race besides our own has perfected interstellar travel?"

"I am." She flipped open the report and pointed to one of the photographs that she had taken. "See that pile of black and green oxides? I took a close-up of it, but you didn't include that in the report. Ferlin Broun, the sub-radio man, says that a sub-radio might look something like that if it were exposed in that cave long enough. It's just a guess, of course, but we ought to get the stuff analyzed. I understand there are techniques for reconstituting oxidized metal electrolytically; we just haven't used them in so long that we haven't thought about them."

"A subradio?" Layt seemed to have swallowed something that wouldn't quite go down.

"I think it's likely. But it must have been out of order, or they'd have called home when the plague hit."

LAYT MANAGED to look a little superior. "They

couldn't *all* have gone out of order. There were other piles like that in the other cities."

Cristina looked at him coolly. "A subradio has an extreme range of around seventy thousand light years. Maybe they couldn't reach their home base."

"They — uh — must have been quite a long ways from home."

"They were a long way from somewhere," Cristina said.

"My hunch is that they were marooned here somehow. They managed to find these caverns, places where it was cool enough to survive. Then they began to teach the local natives, probably in order to have someone who could go out into the sun and gather food. After that, the story is clear."

The Co-Ordinator sat silently for a long moment, chewing over what he had been told. Then: "The whole thing is ridiculous, of course, but naturally, I'll look into it. I'll..."

"You'll look into it all right. And you'll give credit where it's due—to me. If you try to snooker me again on something like this, I'll have your hide. I have a copy of your report, and I have a recording of this interview; and I intend to get..."

THERE WAS a sudden click as Cristina turned off the projector. The image

in the screen collapsed. She turned back to Melissa. "Well, that's it. The rest of it is just Layt and I arguing over nothing."

Melissa Bjornsen looked speculative. "It makes sense; it makes a lot of sense. And it explains a lot of things that Layt didn't even cover in his report." She rubbed a finger across the tip of her nose. "You say Layt is revising his report now?"

"I imagine so. He ought to."

The older woman shook her head slowly. "It'll take another month for him to stew over this thing, and another two or three weeks to feed it through the computers. By the time he gets done, you'll probably be left out again."

"Not this time. I'll get a mention out of him, at least. He's beginning to take notice of me. When I left, he called me Scholar Cefalu, instead of Miss Cefalu. That indicates something, I think."

Melissa looked mournful. "Honey, that guy will cheat you blind. Eventually, he'll get most of the credit, and there's nothing you can do."

"I don't care, Melissa," Cristina said evenly; "I really don't care. I'm not in this business because I want fame and fortune. Hell, I already have too much of both. No, all I want to do is dig out the truth."

"What I want to do now is translate those old books; I think those teachers had a philosophy that..."

"But why don't you..." The old woman stopped, puzzled. "Wait a minute. If you don't really care about getting full credit, why'd you pull this exposing recording stunt?"

Cristina grinned. "I needed a club over his head. From now on, he sends me out on field trips—or else."



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illustration by MURPHY

Too many people were believing too much nonsense, on the basis of too little evidence. It was time for a desperate remedy...

THE PHONE rang, just when I was in the middle of classifying slides, steels, and rock strata—an occupation, believe me, requiring much concentration. It rang and rang. It didn't go away as I hoped—it kept on, ten, eleven, twelve times.

Dropping a precious diffraction grating, shattering it to bits, I stumbled over to the

phone. Who could be calling at this hour? Who would be up at four in the morning but cops, drunks, night watchmen and mad college professors?

I glanced at my frizzled hound, who was snoring undisturbed, and grabbed at the phone. I gave my four A.M. version of "Professor Potts speaking," which was Mmmp."

The voice sounded far



At club meet-
ings, women told
of their experi-
ences with the
saucers.



away, but I heard no long distance operator. A pleasant voice it was, which I could not identify positively as male or female, saying, "Professor Potts?"

"Yes."

"This is Sacaj calling, from Venus. Don't be surprised."

I wasn't surprised, and told him, her—it—so. I was irritated, at the practical joker who was bothering me in the middle of the night.

"What do you mean by ringing my phone in the middle of the night?" I demanded. "Wake up my dog and he barks all night and I can't shut him up."

"Your dog didn't wake up, did he?"

"Well, no, but he usually does. He usually does, when the phone rings at night." I didn't know why I was keeping up this idiotic conversation, except that I couldn't get any madder than I was already.

"I can explain why your dog didn't wake up this time," said the voice, smugly.

"He just missed it, luckily." I was about to hang up.

"No, the reason is that the phone didn't ring."

"What kind of nonsense? Who the hell are you, anyway? If I wasn't a patient man and had to watch my blood pressure—oh, what's the use? What do you want? Speak up."

"Ah, ah! Don't change the

subject. I said the phone didn't ring."

I DECIDED to give him an argument, as long as he was asking for one. "Ah, but it did ring. Twelve times. I counted them."

"Ah, but it didn't," said the sugary voice. "No times. I didn't have to count them."

"Now see here...!" My blood pressure started to rocket.

"Hold it, Professor. Blood pressure—remember? You're a man of science; you never turn down a hypothesis, however unbelievable, without giving it a trial. Make a scientific test. I'll hang up and call you back in two minutes, if you want. Leave the phone off the hook. It can't ring then can it?" He, it she, clicked off.

I said something unprintable, hung up the phone, then took it off the base again and laid it on the table. I looked at my wrist watch.

When two minutes were up, I heard the phone ring again. Grinning my satisfaction, I reached to pick it up.

But it was not there, not where it ought to be in order to ring. It was lying on the table, where I had left it.

And ringing like mad.

And the dog was barking—no he wasn't. He wasn't barking at all. He was snoring.

I twisted my finger in my ear, shook my head, but the ringing persisted.

I picked up the phone and it stopped ringing.

"Satisfied?" said the honeyed voice in my ear.

I said, "Mmmf." It was the nearest thing to an admission I could manage at the moment.

"**N**OW THAT you've had a convincing demonstration," the voice went on, "we may proceed. I find that facts presented too early seldom sink in, so I will repeat. I am Sacaj. I am calling from Venus. I am using the telephone only as a fortune-teller uses a crystal ball—to solidify the thought that really needs no medium of transmission. The voice you hear, the bells you heard—they are all in your mind. But I have perfected no other way to reach anyone on Earth—and I have contacted few."

I couldn't think of a thing to say, except a stupified, "Venus?"

"Yes," said the person called Sacaj, amused. "Isn't it fortunate that I really don't use the telephone system? The tolls would be tremendous. Just now I am 84,369,220 odd miles away from you. But now I think that's enough for one time; the wonders must be parceled out little by little, to be uninitiated. I'll call you again tomorrow, that is, when Venus has rotated once—in forty-nine hours and thirteen minutes. Goodbye, Sacaj off and clear."

I slowly replaced the phone, stood there pondering. Ve-

nus? Forty-nine hours? Why, nobody knew that. Venus' rotation time was still unknown, as far as I knew, because of the clouds. It could be a guess, of course—no one could flatly deny it.

The phone rang again, while I was standing there. *Now what?* I thought, picking it up. "Hello?" I said.

"Ish thish Margie?" said a different voice.

"No, this is Professor..."

"You *shound* like Margie. Whayou doing in Margie's room, anhow? You're drunk, thatsh what."

"Goodbye!" I said, and slammed the phone down.

Then I heard another sound.

The dog was barking.

"**S**AY, THAT'S a dilly," said Bronker. He put down the manuscript and turned to Denworth. "Why don't you write it as fiction, instead of pretending it really happened? You'd do a lot better, I think."

"Oh, no I wouldn't," said Denworth, shaking his head. "I'm not such a good writer, really, on those terms. What I'm trying to prove is that any kind of writer who says what he says is fact, fact, fact, sets the world on its ear. That's the magic word. Fact. If I said it was fiction, they would say it was too unbelievable."

"But," sputtered Bronker, "this is too full of nonsense. Diffraction gratings and steels—what kind of scientist

is this professor? And human beings on Venus with phone etiquette—did you ever hear of oxygen being necessary for life?"

"How far did you get—let's see—end of the first chapter, eh? You missed one. I planted a good one there, and you missed it." Denworth chuckled.

"Planted? You *planted* stuff here? Er—what did I miss?"

"Sacaj," said Denworth. "Sacaj is 'jackass' backwards."

Bronker read some more of the book manuscript, then he handed it back to Denworth. "Just answer me one question: What's the purpose of this book? It doesn't make sense to me; you, of all people, putting out this thing. I suppose you're going to get it published somehow, and pass it out to your friends. But I always thought you were the one person in the world who didn't believe in any of these pseudo-scientific revelations. Didn't you once say, 'anyone that saw saucers must have been in his cups?'"

"Listen to this one," said Denworth. "I thought I saw a disc fly up, but I had only flipped my lid'."

"Well, I see you're still the same old Denworth. But you've got more nerve, then, to put out this—this *hoax*."

"THAT'S THE idea. Now I don't get me wrong—it is a hoax. I haven't flipped my

lid, yet. It's a test. I want to puncture a balloon—but I've got to blow it up first. A controlled experiment. You see, *people believe too much, nowadays.*"

"People believe too much—I agree with you there," said Bronker, who was a science-fiction writer. "It used to be, '*I do not expect anyone to believe me*'—that's how the old-time writers used to start out. '*You will think me mad, but I am not mad.*' Now they'd think him boring—get on with the impossible."

"Isn't that really the big difference, Bronker, between fifty years ago and today? Then, if anyone came up with a crazy idea, they could expect opposition. But now! Any statement made seriously—not in a story but in the newspapers, or in a book as bald fact—is bound to be taken seriously, by some section of the people. This is the Age of Credulity. Why?"

Bronker frowned. "Oh, I suppose it's because they're afraid to doubt any more. So many funny things have come true lately, they don't know what *not* to believe. I suppose it's the fault of us science fiction writers."

"No, it isn't. They still think straight science-fiction is bunk. It's these *other*, dreamers—these rank amateurs mostly—that captivate them. Because they say what they say is *fact*. Not only that. If you don't believe—"

"You're a square."

"Exactly," said Denworth. "They laughed at Columbus. They laughed at the Wright Brothers, the Smith Brothers, and the Marx Brothers. Now they've got the nerve to laugh at me, they say. And it's been pounded into the public mind so long that science can do *anything*, that seemingly nothing is impossible to the unscientific layman. So therefore it follows that this latest moonshine is also not impossible. Just because a few ideas contrary to apparent common sense were proven right, that doesn't mean that *every* idea contrary to reason must be automatically accepted until it's proven wrong."

"Oh, why fight it?" asked Bronker. "It doesn't matter what people believe. The truth is the truth. Let them be nitwits—"

"YES, IT MATTERS!" said Denworth. "Every unscientific idea in the mass mind crowds out a scientific one. I've been fighting these things as fast as they come up. And it's like weeds—two spring up in the place of every one I root out—and I'm beginning to doubt that I've really rooted out any. You see, I'm handicapped. I don't have all the facts either, mainly because there *aren't* any facts. How can you disprove a nonexistent fact? It's just like a rumor—the only way you can get to the bottom of a ru-

mor is to find out how it started in the first place. Then you can show just how the fact was distorted or misinterpreted to grow into the full-fledged rumor.

"But if you can do that—then you may have done more than just scotch the one rumor. You may have helped show up *all* rumors. You've shaken people's faith in rumors, especially if the one explained is an important one. But—suppose it's impossible even to track down one rumor, in order to undermine them all by its exposure? Then you'd have to start a rumor yourself.

"If you do that, and if you're careful to document it, put it down in writing, seal it, date it, and so forth—then when it blooms into a big thing, all you have to do to puncture it is bring forth your documents. That's what I propose to do here. I can't do anything about the saucers, now, but I can start my own legend. I can't just say I saw another saucer, or transported my mind to the past century. It has to be something new—something that I can identify as my own, when it finally pops up somewhere else. It has to be, ah, patentable. It has to have my trademark on it."

"I think you overdid it, with all this questionable science in it."

"OH, NO. THAT was intentional. You see, I

want the scientific men to debunk it. That gets 'em every time. The 'authorities' are against it. The publicity this'll get ought to be tremendous, because it's so unusual. Anything out of the ordinary, on an interesting subject like pseudo-science, should command more free space than the original saucer did." Denworth put the manuscript back in his desk drawer.

"I'm going to get this published and help distribute it myself, and here's how it will go: 75% will think it's a joke, 10% will be open minded about it, 10% will believe it, and 5% will have also got phone calls from Venus, or Mars, or somewhere."

"Where did you get those percentages?" asked Bronker.

"I made them up," said Denworth. "That's what they all do. Why can't I make up scientific facts? The more concrete they are, the more believable they are. You should know, verisimilitude—like the bookkeeper who made up the figure of \$3,456.02. The world will come to an end at 3:45 P.M., October 1, 1981. I saw seven saucers, green with orange spots, triangular in shape. The Martians have attacked Pine Ridge, Arkansas, but nobody is allowed to release anything yet."

"I see your point. You've certainly put plenty of it in here. One thing I like. They're always talking Martians, and Mars. There's noth-

ing mysterious about Mars. Venus is the real planet of mystery. Forty-nine hours—you almost had me believing it myself."

"Well, what is the rotation period?"

"I don't know, you joker. Anywhere from a day to a few months, or none at all."

"Then what I say must be fact, and you dassen't contradict me."

Bronker groaned. "What title are you going to use?"

Denworth paused. "I've been thinking of *'Dial P Planet 3-2000'*, but that's kind of complicated. It doesn't have to be too original. Just startling, like *'Saucers Are Flying'*, or *'I Was My Own Grandfather'*."

"How about *'Venus on the Phone'*? But do you really think this is going to do any good?"

"THE HOAXERS have gone too far, Bronker; something must be done to show them up. I don't mean the people who honestly think they saw flying discs—or those who actually saw them for all I know—or those who believe in the general principle. I mean the ones who take advantage of that belief, and come up with some story about Mercurians coming out of the gopher hole in their back yard, or three saucers they saw in a bar, and then get onto a television program or in the newspapers, and sell

a book on the strength of the publicity."

"Maybe that's their purpose—to sell books."

"Certainly, and think of the psychology in it," said Denworth. "*Have you read all the books on saucers? If not, you can't have an open mind about them.*"

"I admit I haven't," said Bronker. "I can't afford it. Every time someone comes out with a new angle, I'd have to buy their book—a crafty way to sell books, at that."

"People have a natural desire to not be considered backward or narrow-minded. They give every new idea a break if possible. So the result is, they buy anything new, and these characters have accomplished their purpose—they've sold you a book, and you can't sell it back to them."

"Well, you're going to do the same thing."

"In a good cause. It's like a war to end wars," said Denworth.

THE MAN looked doubtful. "Book dealers are supposed to be neutral, Mr. Denworth. On everything. Better that way. We'd rather not say anything about this flying saucer controversy except, 'go ahead and fight, and I'll sell tickets.'"

"Then you can't object to featuring my book, even when I admit it's a hoax?"

"I don't know if it's honest—well, publishers *do* protect pen names; there's nothing

unethical about that—but it seems kind of unfair, to fool the public like this. Why don't you call it straight fiction? You've got a crackerjack book here. I read some of it last night—as much as I read any book, you know." He indicated the walls of books surrounding him, as if to say, *how could anyone read all the books?*

"Well, what if I hadn't told you anything?" asked Denworth, stubbornly. "What if I had walked in here and said this was my book, that my name is Potts, and—what would you have done?"

"You've got me there," admitted the bookseller. "All right, I'll take the book—whether you're Potts or not, makes no difference. It's all crazy stuff, anyway, but it ought to attract customers. Tell you what—leave the book here, and a few extra copies, and we'll find out how it goes. That's what you said you wanted anyway, wasn't it?"

"Do me another favor, will you?" asked Denworth, as he brought in half a dozen copies and piled them on the counter. "Let me stand around here and watch the customers, and see what their reactions are when they pick up the book,"

"It's your time," said the book man. "You won't be in our way—just don't go to sleep in here. We have a strict no-bother-the-browser rule. We'll just treat you like an-

other browser—dust you off once in a while.”

THE BOOK dealer grew expansive. “I could write a book,” (he winced at the thought) “about the people who come in here to buy books. You know how they pick out a book? They open it in the middle, read a few lines; and if it isn’t absolute nonsense—or maybe if it *is*, in the case of this kind of book—they might decide to buy it. That’s something for the writer to know. You’ve got to catch ‘em, not by the opening paragraph, like they always say, or by the ending, but by the *middle* paragraph. You’ve got to make your middle paragraph interesting, wherever it may be, wherever the book falls open. That means almost anywhere. They flip and skip.

“That’s one kind of browser. Then there’s the ‘whole-book’ type. I often wonder why they buy the book after they have read it in here from cover to cover, but some do. Then some people prowl the whole store and end up buying nothing. But I don’t resent them; I used to do the same thing when I was a kid. Got almost my entire education in book stores.”

He arranged the books, putting three of them on the science-fiction shelf, while storing the other three away. “You sure you don’t want to put a little comment in the front—a little sticker on the first

page, maybe, or around the dust jacket, saying, ‘*I decided to publish this as fiction, because it’s not?*’”

“No,” said Denworth, smiling.

“Okay. I’m putting it on this end with the other stuff that’s supposed to be true. Right in between ‘*The Earth Is a Cube*’ and ‘*I Was a Disc-Jockey for the Martians*’.”

DENWORTH looked up furtively, then down to the book he was holding. “*Dawnan addressed the pterodactyl, mockingly, but with a hint of aggressiveness in his voice,*” he was reading. “*Ptery, both of us can’t share this ledge.*” To Dawnan’s surprise, the pterodactyl flapped his leathery wings, opened his sharp-toothed mouth, and buzzed—”

“Do you think all this really happened?”

Denworth jumped a bit, looked up and faced the sharp-toothed woman who had addressed him. She was holding a copy of his Venus book in her hand.

“Why, I don’t know,” he said, flustered. “I’m a stranger here myself. I don’t have any opinion on the subject.”

“I think it did,” she said positively, not listening anyway, going through the middle of the book. “This is too accurate to be a story.” She put the book under her arm, fumbled in her purse. She waggled a finger at Denworth.

“You know what’s the mat-

ter with all these other books?" she said, nodding at the science-fiction shelf. "They don't tell the truth."

DENWORTH stood by fictitious science-fiction, re-reading *"The Skylark of Space," "Twenty Thousand Leagues Under the Seas"* etc., watching and listening for the reactions of readers of his book. It was just as he had expected. The customers who came in almost always glanced at the book—the cover was certainly eye-catching. Most of the readers were silent, of course, being alone, and not likely to talk to such a forbidding-looking stranger as himself; but when they came in pairs, he caught their conversation.

It sometimes ran like this: "Just a minute, Barb, I want to look at this."

"Some more of that Marty Ann stuff?"

"No, Venus. Look at this—'*Venus on the Phone*'. The true, fact story that actually happened.' Look here. '*I didn't realize I was face to face with the real power behind Earth's wars, treaties, fads, hit songs, ideologies...*'"

Or it went thus:

"Here's a whopper—this guy's got a direct phone connection to Venus."

"Don't laugh—there's more to that than meets the eye. You can't judge a book by its cover. They can't always print what they want in the regular

scientific circles—they have to tell people this way. Seems I've heard of this Professor Potts somewhere."

"Isn't he the guy who discovered you could make stuff out of atoms?"

"No, something to do with electronic brains or something. The government clamped down on it, whatever it was."

"How come they let him get on the phone to Venus? Seems like they would wire-tap, or something."

"You can't put it past these scientists. They know all the answers."

"Maybe the reason they know all the answers, is, *they ask all the questions*. Now if I was asking questions..."

"What would you ask?"

"Why are death and taxes so doggone certain?"

DENWORTH had to go out and get more books. He took the opportunity to distribute more to other book-sellers, guessing correctly that their stock had also been depleted. He went back to the first bookstore, to wait another hour or so.

The next customer he saw come in was Bronker, his friend. Bronker had not appeared to notice him, so Denworth hid behind Stapledon and watched.

With satisfaction he saw Bronker come over to the science-fiction shelf, look it over carefully. Denworth tensed in

anticipation. Now he would observe the reactions of an intelligent critic.

To Denworth's disgust, Bronker did not pick up *'Venus on the Phone'*, but one of his own new works.

Denworth sidled up to him. "Don't buy that—it's a direct plagiarism of Verne's *'Five Weeks in a Balloon.'*"

Bronker looked up, annoyance changing to friendly recognition. "How's the book going? What do the people say about it?"

"I wish I had a tape recorder," said Denworth. He recounted his experiences. "That book sells *too* fast. I feel guilty every time someone buys one. It isn't the money I'm making—and believe it or not, I think I'm already selling enough to pay expenses—I can always turn it over to some worthy charity and salve my conscience. But the thought of people believing this stuff..."

Bronker said, "What difference does it make, as long as it makes them think?"

"IT DOESN'T make them think; it makes them stop thinking. That's just the trouble—my point originally. It's the kind of thing that I want to stop—people believing everything that some one says with a straight face. We will never get a science-based civilization until every citizen has a minimum understanding of science—that the Earth

goes around the sun; that astrology is the bunk; that luck is only cause and effect—not a deep knowledge, but as much as people know about automobiles, or politics, or baseball, or gardening. You don't have to know Bernoulli's principle to understand a curve ball. And you don't have to be a scientist to know simple scientific facts—if only other people would stop contradicting them all the time."

"It's the scientists' own fault, isn't it?" said Bronker, looking up from his book. "They act so mysterious about their magical profession, that the common people can't help but think that Secrets Are Being Withheld. Then they turn to these guys—who give them what they want to hear, right or wrong."

Denworth nodded. "My point exactly. The scientists stay up in their tower, most of them, content to discuss Planck's Constant, or something else obscure, when the people want to know, *what makes the world go round?* Does anyone ever tell them? Are they expected to dig into physics texts for the facts? They ought to teach science in every magazine, every newspaper, and not just for the kiddies. No wonder they think scientists are a race apart. Every man should be his own scientist, which means *thinker*. Every man should be able to open one of these

books and see for himself what's wrong with it. The beginning of scientific thought is *skepticism*—not uncritical belief because someone says it's so."

"And how will you foster skepticism, with this book?"

"NOT WITH this book—with its exposure. How do you teach skepticism? How do you teach anything so it'll stick? By letting them get burned; then they'll sure find out the fire's hot. I can't go around contradicting everything that people read—it's impossible. But this way—it's going to make them a little leery of the next book that comes along."

"You're going to a lot of trouble, when the whole thing'll blow over in a few years. Remember the pyramid club? That blew over."

"Sure it did—it was an inverted pyramid. But this stuff is taking too long to blow over. If I can get people to be skeptical, I may be able to put a stop to it, once and for all. Then when something really new or strange is discovered, people will discuss it calmly and scientifically, not jump at once to controversy and prejudices. It's got me the way they jumped at this Venus thing. Do you know there's even a 'Friends of Venus' club formed already? I'm a bit worried—maybe it's getting out of hand. The book's selling unnaturally fast."

Bronker said, "Maybe they're just buying the book because it's controversial."

"No. I'm getting letters denouncing me, as Denworth. I criticized the book, in the papers. Then I pick up letters at the bookstores addressed to Potts. They are full of praise."

Denworth pulled himself together. "Well, I mustn't get jittery. This is working out just the way I planned. They're grabbing at the hook just as I wanted them to—though I didn't expect them to jerk the pole right out of my hand. Bronker, I wouldn't mind if it was just the uninformed layman that believed this, but the thing has been given favorable reviews."

"Not in science-fiction magazines, though. They panned heck out of it."

"A few of them praised it, Bronker, ones apparently you don't read—and I don't blame you. Seems like some screwballs praised it, for fear someone would knock their pet ideas in retaliation, I guess. Get your book and let's go—I'm through with this part of the experiment. It's gone far enough. Now I'm going to puncture my little balloon."

"NOW TO CONTINUE with our TV discussion, 'Forum-Againstum'. We have received just scores of phone calls since this program went on the air." The moderator laughed with pleasure. "You

know, there's an old saying, 'publish a volume of verse, and it's like dropping a rose-petal down into the Grand Canyon and listening for the echo.' But publish a controversial book and—*stand back!* I think there will be time for the panel to answer a few of the questions. If not, our sponsor has agreed to extend the program another half hour. So you gentlemen can go ahead with your closing arguments, and I won't ring the bell on you, too soon, that is. Mr. Denworth?"

"If you don't mind, I'd like to wait till later."

"All right, Mr. Hatfield?"

"My point is this. I wouldn't mind if they said, there *may* be saucers, or water-witching, or clairvoyancy, and just give arguments as to why they may be so. And stop there. Oh, no. You must be a moron if you don't believe, you are a closed-minded old fuddy-duddy, because they are *so* and I *know*, because I didn't read it in a scientific journal, I read it in a picture magazine, and they are *so much* more reliable. As for this Venus book, I can't swallow any of it. It's just a fairy tale, from start to finish."

"Mr. Madigan."

"Did you ever consider, Mr. Hatfield, that some fairy tales have turned out to be true? That Nostradamus' predictions are coming about, one by one? That there is even something in alchemy, after all these

years, because you can now transmute metals one into the other by nuclear fission? That old witches' potions are now found to have had medically proven ingredients? Don't sell fairy tales short, Mr. Hatfield. There's something in them, or they never would have started. Take this book now. Mr. Potts, whoever he is—and I'm sure this is a pen name for some distinguished scientist—didn't invent this out of whole cloth. The character, Sacaj, rings so true—and it's not proven that Venus is uninhabited."

"MR. MODERATOR," interrupted Denworth.

"Mr. Denworth, I thought you said you wanted to wait till last. However, if you want to go ahead of Mr. Pontus..."

"No, I'm sorry."

"Go ahead, Mr. Pontus," said the moderator.

"Thank you. There is no scientific proof there are flying saucers, moon people, ancestral memories, and what-not. *But*, I maintain, there is no scientific proof tht they do no exist either. Therefore it is our duty to be neutral. We must open our minds to whatever comes up, and take no opinion on it, until we have definite proof on one side or the other. On this Venus question, I, for one, have not received a phone call from our Venusian friend. But I do say, *there is no such person*, because I personally have not

been so honored? No. I keep an open mind about it. I lean to the positive, until the negative has been proved. I take the word of authorities such as Professor Potts, whom I greatly respect."

"Mr. Moderator."

"All right, now, Mr. Denworth."

Denworth looked around at all of them. "Would you accept a negative proof if I gave you one? Would you really?"

"Yes." "Of course." "Sure." "Certainly."

"THIS IS a definite negative proof. You won't be able to contradict it. I couldn't find any evidence about saucers or reincarnation that would convince you, but this one thing I *do* have. I want to show you that you are wrong in believing indiscriminately in everything that appears in print, that at least one of the things you so uncritically accept is false. I am going to give you a specific example of one p s u e d o-scientific book that is an out-and-out hoax."

"One exception doesn't prove anything," said Madigan. "Disprove something important, like, say, '*Venus on the Phone*'."

"That's exactly what I intend to do. '*Venus on the Phone*' is a hoax."

"What?" "I knew it!" "Preposterous!" "Order!"

"Did you ever hear of '*The Moon Hoax*', the '*Balloon Hoax* of Poe's?" went on Den-

worth. "Did you ever hear the story of the newspaper editor who, suspecting a rival paper was copying his scoops, inserted a hidden phrase in the material, which came out in the copying newspaper as '*We pilfer the news*'?"

"Get to the point," said Madigan.

"That is the point. There are phrases in '*Venus on the Phone*' which disprove the main premise, in fact the whole phony story."

The moderator rang the little bell. "Now just a minute, Mr. Denworth. I think you're going too far. It's all right to criticize the book, that's what we're here for. But you can't accuse the author of fraud. Mr. Potts is not here to defend himself, unfortunately."

"Mr. Potts is here," said Denworth. "I am Potts. I wrote '*Venus on the Phone*'."

NOTHING could be heard for ten seconds but a general babble, broken by insistent pings on the bell. Finally the moderator said, with an uneasy laugh, "I don't know whether to laugh, or protest. You took advantage of us; I admit I half believed your story." He paused uncertainly. "I don't know whether to adjourn for lack of a subject, or continue the discussion on another tack. I would be interested to know your reasons—first, for the hoax, then the exposure. Just a minute. No, Mr. Madigan, I think it is

more important to hear what Mr. Denworth has to say."

Denworth began, "First I want to explain why I am against all these things. It isn't the fantastic and wild ideas involved—no, there are some scientific facts much more fantastic and unbelievable than these. It's the idea of extra-scientific belief, outside of science, defiant of science, scornful of science, contemptuous of science, but in reality *afraid* of science. For 'science' is *only the careful examination of evidence in search of facts*—scientists don't take sides; they're only seeking for the truth from the evidence at hand.

"If any evidence doesn't stand up in the court of open examination, does it do any good to say, '*the examiners are not fair*'? But that's exactly what people do say, over and over again. These pseudo-scientist authors are continually complaining about scientists being afraid to investigate their theories, even when they *have* been investigated over and over again, and most of them rejected. But the cry goes on, '*they don't give give this a chance*'. It reminds me of Russian propaganda. The pseudo-scientists ignore it when someone does prove them wrong, so must the scientists continue to review and review?

"Prove that they are wrong? How can you prove anything to these people?

They are far more narrow-minded than the scientists they accuse, who will not accept their stories as fact. I say it is *their* duty to furnish positive proof. I stand on the statement that there are no poltergeists, espers or flying saucers—now prove that there are."

"What are they then?" said Madigan.

"What are *what*? I still haven't seen any convincing proof that 'they' are anything?"

THE BELL rang. "Now let's not get off on saucers. We're still talking about the Venus book, and why you wrote it."

"I was coming to that," said Denworth. "I wanted to explain how hard it is to convince anyone on these matters, once they make up their minds. So I thought—why not start a *new* story and see how many of these same people instantly take it in? I always had an urge to do this, ever since the first saucer stories appeared in the newspapers and were so readily accepted. I almost decided one time to call up a paper and tell them I've seen a flying disc, just to see how quickly it would be printed. But then I realized it would only bolster the opinions of the believers, not disillusion them, because it is easier to start a rumor or story than to stop one."

"Then I eventually developed this plan. Now you may think I went to a lot of trouble, and I did. You see, in one way I am just as fanatic as the saucerers. When I see people believing such miserable nonsense I get mad—not at the believers, but at those who are supposedly responsible for education in this world. We scientists are responsible, really. It's our fault that astrology is flourishing, that other misleading philosophies abound.

"I wanted to do something about it, so I wrote *'Venus on the Phone'*. It was a test, a trap. It was to find out how far people would go in their quick acceptance of every new crackpot statement. And I tell you, I was astounded. I didn't expect people to be detectives and find the buried clues hidden in the book, proving its fallacies. But I did half expect people not to swallow the utter nonsense I literally packed into the book. So I am both satisfied and disappointed. Satisfied because I hope I've done something to slow down the future book fakers, who will find it tougher sledding from now on. Disappointed because so few really saw through this hoax."

"If I may interrupt," said the moderator, "you've been talking about proofs, within the book, I believe you said. I'm curious to know what these proofs are."

"ALL RIGHT," said Denworth. "Everybody got

a book? Turn to page 202, the ninth chapter, last sentence on the page: *'No other nation since Egypt noticed such enigmas.'* The first letter of each word spells 'nonsense'. See page 95, at the very top, and elsewhere. The name, *Poncipomon*, is an anagram of another word, scrambled, 'nincompoop'. On some of these I didn't expect anyone to find the clue until after I pointed it out, of course.

"But they ought to have got this one: page 211—Sacaj is explaining that 45% of his people are students, 35% are teachers, and only 25% are production workers. Add up those percentages. On the last page is a Nostradamus-type cryptic and prophetic poem, which is left as a parting message by Sacaj; Potts has tried to fit it in with the future war situation, being hard put to account for all the allusions (as Nostradamus quatrains are always vague, too). I'll repeat it for the benefit of our listeners, and see if they can get it before I tell you what it means:

*"The first success goes
to the Reds,
Brings Yankee blows
upon their heads;
In the strike to target
whistles;
Out go the ballistic mis-
siles.*

*While the battle rolls and
roars,*

*Of the heavy bomber
scores;*

*All day long, to hill, from
pen,*

*Sounds the tramp of
marching men.*

*Long it seesaws, long in
doubt,*

*Ere it turns into a rout;
When the path's cleared*

*all is done,
Another American vic-*

tory won.'

"IF YOU SEE it as a description of the last World Series, it makes more sense, doesn't it?" Denworth looked around at the panel. "Had enough? There are hundreds of them—so many they make the book uneven. I thought you read this book, but apparently it was over your heads. I'm not sorry for you. I caught you in my trap, and now I'm going to stamp on you. Stop believing all this nonsense!"

Denworth finished, wished he could walk out dramatically at this point, but the show must go on. After a few bitter remarks from the others, they came to the question period. The moderator was in confusion trying to decide to whom each question should be addressed, since those that defended or attacked "*Venus on the Phone*" could not be satisfactorily answered by its author, who was at the same time its chief critic.

To solve a perplexing problem, the moderator laid these

aside, and finished out the program lamely with irrelevant questions like, "Are there people on Mars as well as Venus?" and "Who will win the next election?" The panel shook hands with Denworth as they left, but he didn't see any of them again for years.

IV

THE HALL was packed, Denworth could see from his chair on the platform. The chairman rapped for order. Denworth fidgeted, prepared to listen to much criticism of himself, in the course of the debate or whatever it turned out to be before, during and after his speech.

"The fifteenth meeting of the Friends of Venus Club will come to order. We will dispense with the reading of the minutes and all such hogwash, to save time for the very important business we have on hand, and our distinguished guest speaker." This was echoed by applause.

"First we will hear a statement by Eldon Everett, founder of the club, in a summary of recent developments."

Mr. Everett rose, to generous applause. "Much has happened since the last meeting. When I founded this club, along with others, I based my belief not only on personal experiences and thoughts, but on a book which has come to be, in effect, our 'bible'. Since

our last meeting, there has been some doubt cast on this book, to the effect that some parts of it are inaccurate and misleading. Now if this book, great as it is, were all I had to stand on, I would be indignant to try to defend it, or perhaps have some doubts myself.

"But no book written by human hand is perfect. There may be some errors, or even downright falsehoods in '*Venus on the Phone*', but that doesn't destroy my faith in its general principles. The fact that it was not a critic, but the author himself who pointed out these mistakes, testifies to his honesty, and to the underlying truth of the book.

"Tonight we will hear Mr. Denworth, who has revealed himself as the author of this epoch-making volume, in his first appearance before this club, the first that it has been possible for him to make, due to his previous anonymity. He appears at his own request. I'm sure you will all make him welcome." (Applause.) "First, however, before he speaks, we'll have our usual interlude of democracy in action. We'll hear member's experiences and greet recent converts. I leave the floor to you, with the assurance that I, personally, would require more than one television, program, nay, a thousand such programs, to shake my faith in our noble Sacaj!"

THE AUDIENCE cheered, and Denworth put his finger under his collar, stretching it. He'd have to make his speech much stronger than he had intended.

The chairman was recognizing someone, and a man in the back of the hall stood up.

"I got a *television* call from Venice. I saw it. There was pictures right in the middle of the phone dial, where the numbers is."

"What did you see?" said a woman. Discussion was very informal here.

"A big city, scenery like it is on Venice."

"Did you see ~~any canals in Venice?~~" said a heckler.

The first man said indignantly, "There ain't no canals on Venice. There's canals on Mars."

"I saw canals in Venice," persisted the other. "In a painting. There was gondoolas." Laughter. "Did you see any gondoolas?"

The first man refused to answer, and sat down. After some more disturbances, the hall quieted.

Another man got up. "Mr. Chairman, our opinions have been challenged. I move we take a vote."

"A vote?" said the chairman.

"Yes, a vote. We ought to find out whether we still have the same opinion of the communication with Venus as we had a few weeks ago."

A man answered, "Don't you think the very fact that

we are *here*, even after this so-called expose, proves anything?"

"Not necessarily," said the first man. "Maybe some of us are here in curiosity, or to hear Mr. Denworth's explanation."

The jeers about him seemed to show this idea was not shared by the rest of the audience.

THE CHAIRMAN rose to the occasion with an action to stop the argument. "All right. All right. Suppose we take a voice vote. How many of us still believe in Sacaj, regardless of what has been said? Say aye."

A roar shook the hall, and with it Denworth.

"We won't need a negative vote," said the chairman. This relieved Denworth, who feared he would be the only one. This was getting uncomfortable. What a shock they would have when he convinced them!

The next half hour was taken up by short speeches of members, telling about their experiences, conversion of other members, then speeches by the converts themselves.

Finally the chairman introduced Denworth glowingly, and he got up, made his way to the microphone, amid polite applause. He felt like the first time he went up on the high diving board. But they could do no more than murder him. Well, here's

where that long-forgotten public-speaking course would pay off. He hoped.

He began in the best political tradition, with a bit of humor. "First I want to say, I don't know whether there are any canals on Venice."

After a comfortable laugh, audiences were more responsive. He must remember to keep them in this good humor.

"WHEN I WROTE the book, '*Venus on the Phone*', I had no intention of duping any of you. It was an experiment, and no harm was intended, I assure you. It seems to have gone wrong, somehow. When I came here tonight I had only intended to amplify my previous statement on the television program whose sensibilities I had gram, and to apologize to anyone hurt. But it seems, judging from your rafter-shaking vote of confidence, that you still believe in the book, and don't take any stock in the television program that denounced it.

"For this I don't blame you. I always said that a book was more convincing than a television program; and many of you, of course, only heard of the program at second hand. So, if I may, I will repeat the statements I made on that television show."

Denworth paused dramatically, spoke slowly. "I am the author of '*Venus on the Phone*', using the pen name of

Potts. The story is fiction, from start to finish. There were *no* phone calls from Venus. Sacaj is purely an imaginary character. I don't know anything about the planet Venus, except what the astronomers do, which is very little."

He expected a shocked silence, but instead almost felt a tolerant attitude, waiting for him to go ahead and say some more ridiculous things. Denworth sighed and went on.

"I never intended to fix belief in this story, I mistakenly thought everyone would assume it was fiction." Here he lied, and he knew it, but he felt he wouldn't get anywhere by making them out like absolute fools. The rule is, *don't call a fool a fool, he may quit being a fool; but you can call a mule a mule, he won't change*. Denworth wondered fleetingly if he were dealing with fools or mules.

"I must however make plain to you that if you still believe in the book, you are relying on a very shaky foundation; this book, like almost every other pseudo-scientific book, flying saucers and the rest, is fiction, not fact. It is only words in print, and words are only words, not proofs. The word 'fact' does not *make* a fact."

A MAN CALLED out, "That's all right what you say about flying saucers, but don't knock Venusian civilization."

"I think I have a perfect right to," said Denworth sarcastically. "I created it with my own two little typing fingers."

In the hubbub that followed Denworth pulled himself together. He mustn't, mustn't be sarcastic. The gavel brought silence.

"Please don't misunderstand me," continued Denworth. "I am not deriding you for believing the book. I am not making fun of you for doing the natural thing. If I were in your place I would believe it too, not knowing all the facts. But I am *telling* you that it is a work of fiction. I put a lot of effort into making it as plausible as possible, as believable as possible, to make it a more interesting work of fiction. However, in case anyone *did* take it seriously, I deliberately put some defects into the story.

"And I'm going to tell you why. If the worst came to worst, and the story became an accepted fact, just as these other stories have, I wanted to be able to point out that it was only fiction, after all. And as even the word of the author may sometimes be doubted, I wished to have proof within the story that I could point to.

"To be perfectly honest, I welcomed the first indications of belief in this story. It was following in the course of the other books which have pretended to be fact—which

I'll admit, was also inadvertently done in this case. It was my mistake not to mark the book as fiction in the first place. But due to this unfortunate mischance, I now had an opportunity to do that which I had always wanted to do, which was to expose one of these pseudo-scientific books—even if it had to be my own.

“I DECIDED to make it an example—a perfect example of all the books that are constantly coming out, claiming to be true stories about some amazing event, it doesn't matter what, which the author says he has experienced, and has written up as fact instead of fiction. This book differs only in detail from such other books.

“I thought, having written such a book, by then exposing it as false, I would pull the rug out from all the other books, bring the whole house of cards and saucers tumbling down. For people will say—‘this book is a hoax, it's admitted by the author—what about the other ones? What about the worlds in confusion, the landing parties, the lunar messages? Are they hoaxes, too, only the authors aren't honest enough to admit it?’

“When I wrote this—never seriously believing it would be so seriously believed—I planted certain evidence within the story, evidence that when exposed to the light

would cause people to say, ‘Why didn't I see that?’ But of course this evidence is not so easy to discover until pointed out. Those of you who are students of the book may have some inkling of what I am talking about. There are certain self-revealing inconsistencies—”

A hand shot up. Denworth nodded and the chairman recognized a young man with glasses, who stood up.

“Mr. Denworth,” he said in an apologetic tone, “I'm the librarian of the club, and I believe I'm the most thorough student of this book and its commentaries.” (*Were there commentaries?* thought Denworth.)

“I know,” went on the young man, more confidently, “There are inconsistencies in ‘*Venus on the Phone*.’ I could name at least six. But they are very minor ones, for example the mathematical problem on page 61 which is incorrect. But if you are talking about major falsehoods, or that the whole story is a hoax, I beg to differ with you. You may think that what has been revealed to you is the work of a practical joker, maybe, but—”

THE CHAIRMAN came to Denworth's rescue. “Benny, don't make a speech. We get your drift, and so does Mr. Denworth, so let him go on.”

After Benny subsided,

miffed, Denworth resumed, changed his tack. "This is the age of belief. A century ago any new invention, any new idea was scoffed at. But in the intervening century so many crazy things have come true, so many new inventions have been realized, that the picture has changed. Now the pendulum has swung the other way. We are now all too willing to believe *any* new amazing story, knowing that miracles have been accomplished, that this is the age of science-fiction coming true.

"But I say we have gone too far. Because of the atom bomb, which few knew about until its appearance as an accomplished fact, and other military secrets which are no doubt being perfected even now, we are prone to believe that *anything* is possible—that the Air Force is stockpiling saucers; that they have the Little Green Men locked up in Alcatraz; that the Pentagon is working on a plan to split the world like a melon and give half to the Russians. Due to the vacuum of actual information, something has to fill it, because nature abhors a vacuum, on the surface of the Earth, that is.

"Because of this belief in the unlimited powers of science and the military to produce things fantastic, people have gotten away completely from the old habit of skepticism, and have acquired in-

stead the habit of credulity—unquestioning belief—in anything that is said with a straight face, or written with a statement proclaiming it is fact.

"**THAT IS** what has sustained this flood of pseudo-scientific books, each one more strange than its predecessor. No matter what it is, no matter how ridiculous it sounds, some one will think there is a grain of truth in it. Some of these are unsaleable failures, others are best-sellers. It is these *successful* books that I am afraid of. Yes, afraid for you, the reader. Afraid they will destroy your common sense, your ability to distinguish right from wrong, black from white. You are the backbone of the future; on you is the responsibility to improve the world. But you can't prove it if you are as gullible as the people of the Middle Ages. Only when the great thinkers of the reawakening made light of medieval notions, and substituted scientific method, and scientific doubt, only then did the world progress." Denworth paused for a drink of water.

"Galileo doubted. He read the works of Aristotle, who was then the accepted philosopher and authority on all that heavy objects fall faster than light ones. It was right there in print; Aristotle said so. But Galileo . . . He

experimented, dropping a heavy object and a light object from the leaning tower of Pisa; and he *proved* Aristotle was wrong. The falling objects both reached the ground at the same time, regardless of weight. This developed into the mathematical theory of falling bodies. Galileo had advanced science a great deal. But he couldn't have done anything if he hadn't been skeptical. I would like to see more skepticism today."

"What about Charles Fort?" someone shouted.

Denworth was annoyed. "Yes, what about him? Charles Fort fostered skepticism, and all that is very admirable. But after doubting everybody's explanations, he goes on to explanations of his own which are open to question."

Another man stood up, was recognized. "Just what is there that's wrong with *Venus*? I want to hear it." A chorus of seconds arose.

DENWORTH looked toward the chairman. "Do you have a copy of the book handy?"

It was brought to him reverently. It was the first one he had ever seen with a *gold* cover. He flipped the pages.

"I'll quote a passage or two." He'd have to use his best ones. And simplest.

"At the start of Chapter Two, page 29, *'That evening, just after the sun went down, I saw Venus rising in the east,*

and was thrilled...' Venus is never more than 47 degrees from the sun, it can't be in the opposite section of the sky."

Benny interrupted. "I noticed that—I figured it was a printer's error, and I still think so. It should say west instead of east."

"Rising?" said Denworth, his eyebrows also rising.

"Here's another," he continued. "One afternoon, Poncipomon calls up Professor Potts and says, *'Please take down this message, quickly. Every second counts.'* The message goes: *'This planet's entire construction work now is concentrated all on a thousand story transmitter. Don't want you to believe that a telephone line is of importance. It isn't. Now you will hear, you will see, by the television's light.'*

"Every second counts, he said. Every second word. Taking every other word of the message, you get; *'This entire work is all a story. Don't you believe a line of it. Now will you see the light.'*

"I put that sort of thing in about ten different places, mostly in messages from Sacaj or Poncipomon, so you would notice them more easily.

"THERE IS a statement somewhere in the book, to the effect that Venus and Earth are then in opposition, that is, on opposite sides of the sun. This is not opposition but superior conjunction. It is

exactly the opposite of opposition, if you get what I mean.

"But if you don't want to stick to astronomy, let's turn to other sciences that are defined in these pages. On page 238, Sacaj explains some of the marvels of his world. One is that they need no flying machines, because they have discovered a gas ten thousand times lighter than hydrogen, which they force under high pressure into a harness that they wear around their shoulders. Thus they flit about without the necessity of airplanes. This is a scientific impossibility. There is no gas lighter than hydrogen, none possible, and compressing any gas would only diminish its lifting power.

"There is also nothing colder than absolute zero, the absence of all molecular motion. Yet Poncipomon uses a temperature lower than this to freeze ideas for reuse.

"Believe me, these deliberate fakes are no worse than things I have read in some of these recent best-sellers.

"Then, Sacaj has films of all past events on Earth, which they had taken from Venus through the centuries, and he describes to Potts such events as George Washington chopping down the cherry tree, Nero fiddling while Rome burns, and the midnight ride of Paul Revere. Now the first two events are fictitious, and the last happened at midnight, so therefore wouldn't

be visible from Venus, which is on the sunny side of Earth. Sacaj claimed they used nothing but strong infra-red telescopes to record the films, penetrating clouds but not solid rock.

"I DON'T think I need to go on. I think you must realize by now the whole thing is a hoax. Maybe I overdid it, in the number of proofs—I've only quoted a small fraction so far. I only want to convince you, I don't want to bury you. I'm sure you'll go home tonight, read over the book, and see that I am right. Then I hope you'll forgive me for leading you astray. I hope you'll understand that I had only your own interests at heart.

"Don't be too disappointed. I think you will realize that you have learned a valuable lesson from this. In the future, I think you won't embrace any new book that comes along without examining its validity.

"How will you do this? First wait. Wait for the expert and considered opinions of the scientists, the educators, the reputable journalists. I'm sure the alien benefactors or universe explainers can wait around for a few months. Then, when these opinions have been expressed, weigh them. Don't necessarily go by majority rule. Ten doctors may tell you how to fix your automobile, but wouldn't

you sooner take the word of one automobile mechanic? See what they all have to say, then decide for yourself. Accept the new philosophy, if that's what you've been convinced of, after careful consideration. But keep an open mind still. If someone later has a critical suggestion, don't instantly reject it because it comes after you have already made up your mind.

"Remember also, that *facts are not swayed by majority opinion*. Majority opinion may be swayed by facts, but not the other way around. Does the fact that everyone is for it make it so? No. Does the fact that everyone is *against* it make it so? No. Decide the question on its own merits. Choose in your own mind. And when you have chosen at last what *you* think is the truth, then don't let yourself be swayed by anything *but* a sound, reasoning argument, based on facts.

"It may be then that you will find yourself having to say, 'I can't find anyone to share my opinion with me.' Don't worry about that. Have the courage to say, like Copernicus, Galileo and Columbus, '*I am right, and the whole world is wrong.*'

"I suggest you go home and think about this book, '*Venus on the Phone*'. Take your time—there's no rush. The planet Venus will still be around for a while. Ask yourself, for instance, why should

they be calling up only a chosen few? It's almost the same question as why are saucers only seen by a few people at a time, if there are so many of them? And ponder the other questions—the ones I brought up, and others that you will discover yourself.

"I hope you don't immediately disband this club, but keep it active for a while, so you can debate all these questions in an open forum, until all of you are convinced of the book's fallacies. You may call on me at any time, and I will explain any points not clear, or answer any of your questions by letter. Now if you will excuse me, I will end my speech, again with an apology, and with good wishes to all of you, hoping you have no hard feelings toward me. Thank you."

V

HE TURNED and walked back toward his chair. There was a silence, then a few scattered handclaps, dying away, and a buzz of talk. This didn't quiet down as he expected, but increased to a rumble, and he stopped and went back to the microphone, fearing but facing an expected barrage of questions.

Hardly audible through the noise, came the first one: "How do you know all this stuff?"

Denworth just had a chance to open his mouth to answer this when someone else shouted, "How do we know you are the author?" This was greeted by a chorus of approval, then some booing started. He looked around, saw the boy named Penny on his feet, pointed to him, hoping for a sensible argument from him at least. Benny was shouting something at him, which he could not hear. Denworth appealed mutely to the chairman, who gaveled and gaveled, ineffectually. Maybe it was for the best Denworth could not be heard. If he opened his mouth, he would put his foot in it for sure.

Benny was shouting something, but he could only catch a few words here and there, as two other people also had taken the floor. "The *real* Potts," Benny was saying. "Ancestors—generations—I have genealogy going back to—impostor." Another man close to the speaker's platform shouted something which was clearer, and also enlightening to Denworth. "How can we believe you, when you say you lied before?"

Denworth asked, "What about the proofs?"

A roar went up. "*Faked*", was the general sound of it, though Denworth couldn't be sure.

HE WAS wondering how he could get out of this,

when he was saved from an unforeseen direction.

One of the men on the platform, one of the officers of the club, came up beside Denworth and started shouting into the microphone.

"Order, please," was what he put into it, Denworth doubted if anything was coming out of it or being understood. But the audience, seeing him there, quieted down somewhat, although the more raucous ones were now shouting at the man instead of at Denworth, the words most frequently used being "out", "kick", and "throw". But the man's appeal of upraised, downward-waving arms was slowly heeded, and comparative quiet came.

Then the man, whose name was Collins, he remembered, the club's secretary, surprisingly put his arm around Denworth's neck and shoulder. This was a gesture to impress the audience, Denworth figured, and did not resist. The arm soon left his shoulder to do its important job of helping the other arm quiet the audience again.

"Please don't be angry with him," said Collins, as soon as he could be heard. "I think he has had a hard enough time, recanting—when you and I know he has been *ordered to recant*."

This produced a sensation, and when it was over, the secretary continued. (Denworth

was too bewildered to open his mouth.)

"I'M GLAD he reminded us of Galileo," Collins went on. "Like Galileo, who when facing the Inquisition, could only say to himself in an undertone, 'but the Earth *does* move, all the same', he has shown us that he really doesn't mean what he says. He *knows* that this book is still the real truth. Look at him. Did you ever see such a downcast expression?" (Denworth straightened his face.) "Does he look like a man who is satisfied that he has said what he wanted to? If he were exposing a hoax, he would be laughing at us." (Denworth wished he could laugh.) "Instead he is almost sad."

Collins turned dramatically to face Denworth. "We respect your statements, Mr. Denworth, but we *refuse to accept them.*" (Applause.) "We sympathize with you; we understand your reasons for trying to deceive us now, but we don't believe what you say, and we don't think anyone can make us."

As Denworth opened his mouth to speak, Collins quickly stopped him. "Now don't say anything! We don't want you to get into trouble! We know your responsibilities to the Authorities. We only want to tell you that we understand." He turned again to the audience. "Let

us show Mr. Denworth that we don't condemn him for this. Rather we—uh—*for-give him.*"

This got a big cheer. In two minutes the audience had changed from hostile to sympathetic. Denworth's admiration flashed for this man, who would be a credit to any political party. The audience was now singing "For He's a Jolly Good Fellow" and they were standing in the aisles. Collins took his hand and led him down the steps to the side aisle, where Denworth was immediately hoisted upon shoulders and carried around the hall.

IN THE WHIRL, he saw that the chairman was apparently adjourning the meeting, as he moved his gavel up and down silently, shouted a few words inaudibly and started putting papers into a folder. The parading audience carried Denworth up and down the aisles, and those who were standing up in their seats, unable to get to the aisles, called to him such gems as: "I know they made you recount," and "I get phone calls from Venus every day."

Denworth wanted to pinch himself to see if he was dreaming, but he couldn't get his arms loose.

The parade led outside, and somehow in the traffic of the sidewalk, Denworth got down and made his get-

away. He sneaked around the corner, then ran at top speed for a dark alley, which he ducked into.

Alone in the alley, he brushed himself off. There was a tear in his sleeve and a few of his coat buttons were ripped off, and he felt a scratch on his ankle. Strangely, he still had the gold-covered book under his arm. With an expression of disgust, he hurled it from him, over a fence.

A crash of glass startled him. Cursing, he ran out of the alley, and emerged into another busy street. He took it as an omen that this book would continue to do untold damage, as long as it remained in existence.

He hailed a taxi and went home in defeat.

BRONKER SAID, "People believe what they want to believe. But my gosh, don't let it get you down. You don't have to believe it, do you? You made it up."

"I don't know what to believe any more. Talk about brain-wash. After listening to those people I feel as if a flash flood has just gone through my head."

"Why do you keep going to those meetings? You're just asking for it. Concentrate on the sane people in the world."

"Yeah. I have," said Denworth. "I've been going around trying to get my

hands on all the unsold copies of the book so I could destroy them. I even asked friends for their copies back, no matter how nutty it made me look. Some of them wouldn't give them to me, just promised not to believe the book. I told them I knew they wouldn't anyway, but didn't want the book around. I didn't want the blasted thing doing any more harm. I felt like the repentant scientist destroying his invention, in the old stories.

"I went to all the book stores and tried to pick up the remainders, but there weren't many. Some of them were all sold out.

"And you knew what's happened, damn it! Vanity Press went ahead and published another edition. I told them not to, but it was too late. Seems it's automatic—they did it as soon as the first edition was nearly sold out. Oh, it's hopeless.

"I've been thinking of publishing another book explaining the first one. '*An Answer to the Venus Phone*' or something. But it's a dismal prospect, the thought of one book chasing another down the corridors of time, never quite catching up. As in politics, the denial never catches up with the accusation."

Bronker said, "What are all those letters you're throwing in the wastebasket—aren't any of them any good?"

"No. Yes—here's one. It's

the only sensible one I've received, from a science writer, 'O'Limpus'. You'd hardly call it good, though. I'm accused of fostering pseudo-science. He says I've succeeded only in adding another myth to the unanswerable. And he's so right. It's ironic. I'm castigated for doing the very thing I tried to stop."

"What are some of the others?" asked Bronker in curiosity, picking a few out of the waste-basket.

"GO AHEAD, read them. Throw them back in the wastebasket when you're through. Don't read too many of them—they'll come out in your bad dreams, or your science-fiction stories."

"*You have no right to deny the truth of this classic,*" muttered Bronker, reading. "*You're only the messenger, you have no right to question the message.*" Waste-basket." He picked out another. "*I'm sure you put all those mistakes in the book to protect it. Camouflage against serious investigation...*" Hmm. They're all like this?"

Denworth nodded. "They refuse to be disillusioned. I've created a Frankenstein's monster that I can't control." He put his foot in the waste-basket, packing it down to make room for more, spent a little time getting his foot out again.

After a few moments of si-

lence, Bronker said, "I just happened to remember a case something like this. It was a man who was asked to write an article for a cheap encyclopedia. In a mischievous moment he put some phony fact in that didn't belong there. I wish I could remember what it was—it would have made this story more interesting. Anyway, nobody noticed, and years later this guy picked up a *different* encyclopedia, and his fake information was in it too—it had been copied out of the first one. The moral is: don't start anything."

"Now he tells me," said Denworth bitterly.

"AW, CHEER up," said Bronker. "Here's a new twist on an old saying: 'If you can't convince 'em, amuse 'em.' Capitalize on your ability as myth-maker. Become a science-fiction writer."

"Oh no, not that," snickered Denworth. "Nothing so low."

"Cheer up anyway," said Bronker. "Let's have a drink."

They stopped for refreshment.

Bronker offered a toast. "To fact."

"To fiction," said Denworth.

The phone rang.

Denworth dropped his glass and swore nervously.

Bronker put his glass down. "Is that one of your crank friends calling you up?"

"No, it can't be," said Denworth. "I had the phone num-

ber changed—it's unlisted now." He picked up the phone, answered it.

He didn't speak for several minutes, getting whiter and whiter. Bronker fidgeted, wondering who he could be talking to. Who would be calling an unlisted phone? Finally Denworth took the phone from his ear, without having said a word. He looked at Bronker with a

wooden expression, holding the phone limply.

"Sacaj?" whispered Bronker.

Denworth glared at him. "No, you idiot. It's Hollywood; they got the number from my lawyer. They're making a movie of the book and want me to come and be technical adviser."

————— ★ —————

★ Next Time Around ★

This time, we can give you the news you've been waiting for.

Starting with the May, 1958 issue SCIENCE FICTION STORIES becomes a monthly magazine.

And our next issue — this same May number — will see part one of a new, book-length novel by L. Sprague de Camp.

"The Tower of Zanid" takes place in a background which may be familiar to those of you who have read "The Queen of Zamba" and "The Hand of Zei" — a background the author has made as believable as Edgar Rice Burroughs' Barsoom. More believable, in fact, because while Burroughs' fans could suspend disbelief for the sake of fascinating stories, they had to suspend a great deal of scientific fact, too. Mr. de Camp's many admirers know that he never requires this of them.

However, you need not have read any of the other Krishna stories to follow the drift of this one; as with all of his other tales, "The Tower of Zanid" is thoroughly worked out, in every respect. You won't want to miss it!

And, very important from where we sit, we want to hear from you, want to know how you feel about our monthly appearance and the publication of serial novels. Don't telepath — write us a letter!

Theory And Practice

THERE IS usually a wide divergence between the theory and the practice of anything whatsoever, and this is particularly true of the arts. Here theory arose from practice: Aristotle, for example, taking note of the effects produced upon him, upon other sensitive and intelligent and educated men of his time, and upon the people, induced from these effects the theory of what constituted the values in a play. Why did one play always seem to produce a powerful and predictable effect upon its audience, however often attendees might have seen it before, irrespective of whether the latest production was as good as an earlier one? Why did another play, which seemed to be on a similar level at first glance, fail to achieve anything like the effect of the first play?

From close examination of practices in art, and long-range, repeated response to practices, we get theories about what makes for good

or bad. They are reasonably useful. A "bad" work—one which fails to convince a necessary minimum of people other than its creator that it is "good"—can usually be found to be deficient in one or more ingredients which art theory has found to be necessary, and/or contains one or more ingredients which art theory has found to be injurious. This, of course, is very general; there are many arts and many theories of art and arts.

But there is one thing that art theory does share with scientific theory: usefulness. A theory, in art, is useful (and, in addition, true) insofar as it explains *why* various works of art which we have been told are "good" are good, *why* various other works which we have been told are "bad" are bad—and thus gives some instruction to the student artist.

AN ART THEORY is not a recipe; it can tell you, in illustrations and demon-

strations, how Sophocles mixed the ingredients and made a great play; it cannot tell *you* how to make a great play with the same ingredients. In fact, if you try to follow the demonstration literally you won't repeat the results. The odds are that you will come up with a very bad imitation.

An art theory is not final. You *can* turn it upside down in your practice and come up with a work which others will agree is "good"—even though it ought to be "bad", according to theory. At this point, we applaud, tip the hat, shout bravo!, and repeat that the other 9,999 contestants who tried to do the same thing produced works which were bad in exactly the way theory indicated that they ought to be. It requires a special theory to account for the magnificent success of your impious gesture—and woe unto the tyro who then tries to imitate you!

An art theory which tries to explain history, or implement politics is worthless. Such theories usually demonstrate this by setting up standards of judgment which automatically discard acknowledged masterpieces of the ages and elevate obscure trivia as "unjustly neglected" fruit of genius. (By "obscure" in the preceding sentence I mean "un-noticed" rather than "difficult to understand"; relatively few

genuine master-works are easy to grasp.)

ONCE BODIES of practice existed, so that theories could be induced from them, it became possible for an artist to work out his own theories, then create works in accord with these. At times, such an artist has been successful; at other times, he's failed miserably. More often, like Wagner, he's been sensationally, perhaps brilliantly successful in part, but least so where he followed his new theories exactly. (Of course, such an artist points to the applause-meters as proof of the correctness of his theories, unaware that these usually proved nothing of the sort.) Wagner's *musical* innovations evolved out of the music around him—although it took his genius to see that logical next step. But his radical notions about how music-drama should be written begin to sag when we see that some of the most enduring parts of his operas are precisely those parts which, in form, are most familiar to people who know what he considered the "obsolete" forms—the quintets, choruses, duets, etc. And what he considered most great—the soggy, philosophical librettos—are exactly what most people who still enjoy Wagner find they have to endure in order to enjoy what is enjoyable. Another argument against signing foreign-language op-

era in English; in German, a good deal of what one can hear of the tedious libretto for the "Ring" operas sound endless and dull, as it often is. If you could hear it distinctly when it is sung in English—which you cannot, as anyone who has attended English-translation performances will tell you—it would sound insufferably stupid, as it usually is.)

SCIENCE FICTION has been in existence since the Industrial Revolution, and the practices of writing it had been long established before anyone began to theorize about them. When Hugo Gernsback brought out *Amazing Stories*, he noted in his editorial for volume one, number one (April 1926) that:

Not only do these amazing tales make tremendously interesting reading—they are also always instructive. They supply knowledge that we might not otherwise obtain...

So far as we know, Mr. Gernsback was the first to attempt a theory of science fiction; but he was not the last. There is no theory as yet which has the degree of general acceptance needed to call it authoritative—something one can point to when someone else asks, "What is science fiction?"

Nor is there any reliable codification of practices. The

closest we can come to this is information to be found in such books as L. Sprague de Camp very fine *"Science Fiction Handbook"*, (Hermitage House, New York, 1953); in such critical works as Damon Knight's excellent *"In Search Of Wonder"* (Advent: Publishers, 1956); and in numerous of editorial-requirements squibs. But most of this will only help you write stories that editors will buy, which they hope to sell to magazine buyers. A profitable publishing venture is not the same thing as literary success, even though the two can co-incide.

In general, those theories which are still useful relating to successful non-sf fiction are valid in relation to science fiction, so far as they go. But what we need is examination into the special requirements of science, etc., which you do not encounter in non-sf fiction.

We have to have science; agreed. Very well, how do you get it in without (a) making a fool of yourself (b) turning the story into a lecture (c) befogging and befuddling the reader? We assume—we must assume for the sake of discussion—the "the reader" has the necessary intelligence and education to follow you if you do your proper share of the work.

I would like to see your thoughts on this subject before we come back to it in a later issue. RAWL



the jolly boys

by Walter
Maneikis

Since we believe in education for all, we must distribute the means thereof. PS: We are the educated, and the best qualified to do the work.

“H EY, PILOT!” On my first trip to Venus City I yelled into the intercom. Our man must have been new on the run, because the ship kept bucking and pitching. The twisted coulees zipped by us in a jagged stream.

“Pilot to passengers. Pilot to passengers. Fasten your safety belts.” The voice droned. “This is a normal landing. Fifteen minutes after we get out of the crosswinds you’ll all be tucked away at the Excelsior Hotel. The salesmen will hole up at the Trident as usual. There are no other choices.”

“My nerves are jumping.” Kent shuddered.

“I don’t feel a thing.” Frank gazed at the opaque yellow dust of Venus; the sawtoothed mountains rushed at us.

Officially, the loss of personnel and passengers had been reduced to 3.2% on this trip, but I didn’t see how my jolly boys could keep their smiles and peddle books, even if we survived. Later, I understood this was a normal approach; but I grumbled even after we got into the decontamination lock and shot by air pressure toward the big dome, Venus City, which hovered over uranium pits and the stores that served the minors. From my memory of the briefing I’d had, I recognized Briquette Towers and the Arena, where gladiatorial

contests were fought once every month.

Clithero ignored the other passengers and met us. A spare, lean man with rubbery wrinkles around his face, he paused for the flashbulbs and listened while we spelled our names right for the *Venus Times*. He was the assistant to the current Machiavelli, who was intent on staying in power by all lies. He gave us tiny golden keys to the city, bowed again, and hoped we'd be happy in our stay.

"Thank you." I bowed myself.

WE WENT into our act as jolly boys willing to sell frap skins or books for whatever we could get. Kent smiled at the girls, and Frank extended his hand to anyone who wanted to shake it. Once he became absent-minded, and his thirty-seventh welcomer fell to his knees in pain. I laughed that off, but resolved to change a multiple of his superego and tame him down; he'd been acting too independent lately.

I'm Joe Scully, an effervescent extrovert with a bland grin and a heavy cigar. Being utterly without scruples, I bribe anybody and give misinformation to reporters. My favorite words are slinkers. Like my friends, I'm about average size—not so big as to be offensive and not so small as to be innocuous.

My team includes George

Kent, who has a thin, square face like a matinee idol. He has that indefinite something that makes women swarm over him. All three of us wear a certain set of face and a diamond ring worth an escape passage. Sometimes we fail, but usually we succeed.

In some ways Frank, who can't be anything else, combines both our best qualities. He can shake hands and think—review his memory, anyway. With his oily, gay look he is at once the least and the most intelligent of us. He fits every background. In the various places we have visited, people swear his brow is low or high, his hair red or deep black, his dialect pure Earth or some local argot. He never forgets anything, especially a tune, and he can drum the piano *andante* or *allegro*.

I WAS ASTONISHED at the appearance of Briquette, unpopularly called Brickbat, Earth Agent Number 3. Accompanied by a guard of twenty, he came with his wisp of a mustache and a swallow-tailed coat. Of course, I knew that the planet had a small population and few visitors. Still, I was puzzled by his motives in escorting us to our suite in the Hotel Trident, together with Clithero and the automatons with the blasters.

"We're ordinary hucksters," I said, looking at the crowd filling up our rooms. "What is your pleasure?"

Briquette waved his guard into the hall and retained only Clithero. "I greet all visitors," he announced stiffly. "I am especially interested in you because you sell words. I may have a problem for you; the fees may be to our mutual satisfaction."

"We'll let you know later," Clithero intoned.

They left in a military half-step. I sighed over our chore. This was a dull planet, a large mine protected by a dome filled with Earth air and never warmed by the sun. Old Sol lay outside the clouds of dust that well up for three hundred miles above deserts that were frozen one cycle and hot as Satan's brow the next.

In our suite I looked over the master microfilms dragged from my briefcase—all carefully edited, of course, for the benefit of people whose emotional surgings exceeded their intellectual capacity.

"How about '*Galactic History*' by Dumas?" I asked.

"A drug on the market," Kent said.

Frank reclined against a saffron chair. He said nothing.

"*The Universal Bible* should do well here." I mused aloud. "*Sports and Games* might do the trick. What about '*Ovid Revised*', the modern version of advice to the lovelorn?"

Frank canceled this idea.

"We don't have enough facts to know the local appeal."

"What's the difference?" I chortled. "In any book, the purpose is to get in enough slinkers—sly, i n k l i n g thoughts against orthodoxy and frigidity. Any book can do it."

THEY BOTH disagreed with their silence. So, after a rest for Kent and me, we stalked around the night spots, from the *Nom d' un Pipe*, the dictator's favorite, to the *Bierkeller* on Poverty Row. Since there's no real time on Venus—no sunrise or sunset except after thirty-one Earth days—we lost track of the hours. We bopped around the taverns and shook hands with a lot of people. Our triple bland smiles finally touched Fred Garth, printer. After I bought him a jolt, he agreed to reproduce fifty microfilm copies of each of our four books, together with colored illustrations, a spectroscopic analysis of atoms for "*Galactic History*", and detailed posters to be hung all over town. I paid him the credits and retired for a nap.

Tossing on my bed, I looked at the shorthand notes about the Numbs and the Prompts, neither of which had the benefits of being wrong. Both organizations were split into fractions, and both were certain of their righteousness. The Numbs—the National Unity Organization—willing

to split from Earth, were Fundamentalists and Falangists, sure about everything. They plastered the town with slogans like "Down with deviltry" and "Beware of the limbs of Satan," by which they meant anybody against their point of view.

"You need rest," Frank said. He often reminded me of my imitations.

"I'm studying the history of the Prompts." I sneezed. The opaque dust, despite the protection of the dome, seeped in everywhere. The Prompts were the Proleterian Mobilizers, with a metaphysics of their own. They argued for equality, but contended that their ruling clique knew all. An empirical rather than a religious front, they worshipped their own saints, like the man who had plowed two acres a day with only horses.

WHEN GARTH'S reproductions were ready, I held a fair in the lobby of the Trident. The curiosity-seekers came and went. With all our flashing banners and gaudy illustrations, we almost sold a book, when some young lad—a long-distance descendant of the colonists who had settled to mine on Venus—pulled two credits out of his pocket for "*Galactic History*".

A scrawny Numb knocked the book out of his hand. "Blasphemy!" It was Clithero.

"I was merely curious, but

I succumb to the judgment of one of the Inner Council." The frightened youth almost saluted and dashed away.

Clithero Projandrum snatched the print from the floor. "Books are the limbs of the Devil."

"You were trying to ward off evil influences." I nodded as if to agree with everything the zealot had in his alleged mind. "I applaud, though our wares are the best in this line." This is reverse psychology, an indirect appeal by which I seem to put myself at the mercy of another.

"I am a Protector," he intoned. "I am all things to one and all—father, mother, uncle, and friend. I shall even protect you from yourselves. I am St. Martin to the drunkards, which you have been in your appearances in taverns, and St. Christopher, the benefactor of travelers."

"I didn't know the ancient civilization had stretched this far." To myself I murmured, "What a doliocephalic!"

"God be with you." He raised a palm and drifted off, leaving us each a medal of St. Martin.

IN MY SUITE that night, I we felt discouraged; we hadn't sold a book. Clithero had confiscated one of our titles, and a copy of each of the others had been stolen later; but we had no cash, and very little promise. I've been around longer than my

assistants, but I fumbled with the problem, too.

Kent, the glamor boy, ate the last of his synthetic steak. "Let the zealots burn some of our books. We can always reproduce them. The publicity might get us to first base. The left wing of either the Prompts or Numbs will buy anything everybody else bans; maybe we can get a start this way."

"I, the head of the jolly boys, have to put in a negative. These people are too serious. I'd rather have 'em steal our slinkers."

"What do you want to bet this alleged government is now studying our wares?" Kent asked.

I nodded. "The analyzers will have a little trouble trying to make any sense or semantics out of our words. They'll catch the drift in time, by intuition, of which bureaucrats are always short; meanwhile, we have to get the jump on them. I have a plan, but I don't know how it will work until I survey the territory. Any suggestions?"

"Let's look around again," Kent said.

"The usual procedure." Frank nodded.

"Let's review our qualifications." I smiled brightly. "This is a pep talk—hip, hip hooray. Every man on this team has an I. Q. of at least 180, new style, and an absolute lack of scruples. We also have

strong stomachs for rejections and potatoes."

"We can shake hands with everybody and entice the girls." Kent looked unhappy.

"Our main object is to distribute books." Frank was the one most poised. "I'll play the piano. Do you think 'Love in Bloom' will assail the human ears pleasantly on Venus?"

IN THE NAME of the Pipe and the Bavarian Bierkeller he acted the role of guest performer and drummed out, with absolute precision but no flair, popular tunes of various eras. Two sleeps later, while he was fingering "Down by the Old Venus Stream," celebrating an ersatz brook that moved sluggishly around Briquette Towers, a happy salesman hooked his thumbs under his suspenders and asked my teammate for "Flatfoot Blues."

"I do not recall the aforementioned effusion," Frank said.

"Come on, kid. Remember, we don't want to shoot the piano player unless we have to; give the kid a Venusian sling."

One thing led to another. We all crowded around the keyboard and grappled with "Baby Murder, This Is Murder, Baby," out loud. Our new friend looked us over and hic-coughed. "What are you sellin'?"

"Just ideas," I said. I must have been over the hill on a

downward slide. I'm usually not this open.

"You'll never make any money." He weaved and ordered "True Blue Tooroo" for the next piece. "I've been here before. The Numbs and the Prompts are business groups. They think a nine per cent profit is the greatest of all—hic—virtues. Four more slings!"

"Normal," I said.

"Normal." Frank sipped and reared back with renewed energy. Alcohol gave him fuel without toxins. I knew he had recorded every overtone and undertone.

"Appeal to their cupidity—the greatest virtue in a mixed-up planet. Hic."

"How can you sell an idea?" I persisted.

"**YOU MAKE** me laugh. This is a mercantile civilization—what there's of it." The drummer rambled on to say he had peddled miniature simulacra of the heroes of both the Numbs and Prompts. "The women snap them up. You know. Totem."

"Spell it out," I suggested.

"Charm bracelet stuff. Did I order drinks for my friends? They're a bunch of goofs. My friends, you can't make money with ideas; in my business the markup is two hundred per cent. Hell, you're not tryin' confuse—trying to confuse people with thoughts? How dumb can you get?"

"We usually lose money." I shrugged.

"You're philanthropists?" He peered at us.

"You might say that." I nodded.

"I have just enough sense to catch the next rocket." Our evanescent friend threw his glass against the wall and tottered off.

I'm not slow to figure an angle. Cupidity, a form of self-preservation, was a great virtue, sometimes. Kent and I whispered an agreement balancing our avowed principles and practices. When we all returned to our quarters, I held a conference.

"Obviously, gentlemen." I announced, "this is a backward civilization that doesn't know its left hand from its right. We don't sense all the standard appeals here, but let's try an all-points campaign. I have already arranged for prominent literary ladies on all sides of the political fences to discuss our books. Clithero may muffle them, but some slinkers may start. I have hired door-to-door salesmen to work for a profit of thirty per cent. They may serve us well."

"**HOW ABOUT** giving a ticket with every book purchased? The lottery might be a prize of twenty thousand credits." Frank was never cynical, just adaptive.

"The lottery might *yield* a prize of your estimate," I said.

"Then what?"

"We can run the contest ourselves and give the prize to a confederate, say Kent. It will cost us nothing."

"Go to bed, Frank."

"I don't need sleep." He would have laughed if he could.

There were only two voting members in our organization, Kent and I.

"I don't exactly like this, but should I marry a politician's daughter? I did that on Maple Leaf 4." Kent looked as if his duty might kill him.

"I doubt if we need your supreme sacrifice here." I rubbed my chin. "Probably won't work. If you find a buxom lass who belongs to one of the big hats, you'll be hooked for life." I looked down my nose. "We can condone only so much immorality."

"Just as well." Kent yawned. "I'm tired."

As a moral family man myself, I turned to Frank. He was usually the base of any all-points campaign. "Since all of the bureau's tomes are loss-leaders, let's try another one of yours. Search your memory for everything good about business, and tie up the eternal virtues with gain." I sighed. "You know the incidence. Blast the wrong people and bless the right."

"Who are the right?" Frank asked.

"Everybody against us. You know what's under my mach-

inations." I was too tired to explain again.

"**A**S CUSTOMARY, I suppose I must keep in mind the crooked syllogism." Frank came near to sighing. He repeated mechanically:

Major Premise

We want to educate people to equal opportunities.

Minor Premise

We believe in education for all who can absorb it—and some who cannot.

Conclusion

Since we believe in education for all, we must distribute the means thereof.

Hidden Premise

(the slight of hand)

We are the educated and the best qualified to do the work.

"I've known the words for twenty years. I am bored with them," Frank said.

The assumption and all its offshoots were an ethnocentric approach, founded on the subjective view that ours was the earliest civilization in the galaxy and therefore the best. To settle my conscience, my doubts that we had all the answers, I made a joke. "Kent, let's destroy this robot with a Lethe pill in his slings. A machine that takes on human emotions cannot be tolerated."

"Bury him in the sands outside the dome," Kent said.

"For a state of mechanical estivation I have enough fuel

for 98.965 years in this climate."

TWO OF US laughed wryly. Frank would be working within his limits after the lid was closed on the rest of us, but he lacked real humor or a sense of the macabre. He was created to be a literalist.

"Don't forget to be confusing." I bit off the end of a cigar and then put it away. "Make everybody think. Slug 'em with a slinker now and then—some sly, ingratiating word or phrase. People who think won't be either numb or prompt."

"I doubt if I shall have to be subtle on this planet. At any rate, I have ample material in my banks." Frank hauled out his typewriter. "Of course, my expenditure of energy will be high. If I could have another Venusian sling..."

I pushed the right button. A perma tray slid out of the wall and offered a bubbling glass. While we slept, he bopped away at his electronic typewriter. About eight hours later he proofread his brochure of forty thousand words and pushed it into my lap. I knew better than to correct. Frank could be glib in Sanskrit and a myriad of unearthly dialects. Once he read a textbook about East Gothic and committed it to memory in an hour.

Going on my faith in him, I ordered a hundred thousand

copies of "*Highways to Happiness*," which had the subtitle, Success in Business. Both the Proper Prompts and the Naughty Numbs' two splinters of the main factions, took peeks at it and bit just a little. Since it spoke in nasty terms about the devil and praised the proleteriate, both sides accepted parts of it. At the end of the first week, we got rid of five thousand copies. A hundred thousand went in the following month, and even the roustabouts in the taverns were arguing the answers to propositions like this:

If three hard workers put in fifty hours a week, who will make the most money? The public official? The mine worker? The store owner? What will be the average stipend? \$480? \$1,200? \$16,000?

Most of the problems were more reasonable, maybe even romantic. One concerned a Venusian girl who had three suitors. Should she marry the faithful numbskull with a bank account of \$1,800; the flighty glamor boy with \$1,900; or the older man with \$2,000 and a lot of insurance? The local TV station made soap operas out of the stuff.

WE KNEW we'd needed the powers when Clithero appeared in our hotel suite. He motioned his two

bodyguards into the hallway and stalked in at attention.

"Sit down." I waved a chair.

"This is not a social visit. You may be charged with treason."

"We're citizens of Earth."

I smiled. "How do you like our how-to book?"

"How to do what?" He was nettled but sat down. "We have watched your operations and find only indirection. What are your motives?"

"Just to sell a few books." I puffed at a cigar. "We thought the combination of puzzle and how-to might work. Life gets pretty dull here, I gather. We might publish a crossword puzzle with a prize of \$10,000 for the lucky striver. We should get a hundred thousand entrants at five dollars a head and clean up."

"I have a suggestion."

"A deal?" I rubbed my hands.

"I have my doubts about you, but the Agent and I both agree you are clever. Because you have found the public pulse, so to speak, I cannot assume you to be fools," Clithero said. "Mr. Briquette has political ambitions. He wants to exceed Earth Agent 2 on Mars, whose mines have produced more than ours."

"Such a great proconsul as Brickbat seeks our advice?" I was blandly astonished.

"He would appreciate a little more control of public opinion. For five years the

conflicting parties have not been able to arrive at a decision."

"In other words a military coup d'etat is in the offing." I chewed up half my cigar.

"YOU ARE gentlemen of the world." The consul of the procounsul lifted his rubbery head. "He suggests that a sure profit of a hundred thousand each may be attractive. Plus first-class fare to the next scene of your operations."

"On the other hand, if you can up production and ship out just one excess load a quarter to Deneb, a fistful of people here will get rich." I gave him my best confidential look.

"The odds are that..." Frank began.

"My temper is short. I'll have you thrown into the lowest dungeons under the Arena!" Clithero glowered.

"Tch! Tch!" Kent laughed. "Temper."

I took out my wallet and showed him my identity card. It recorded my Social Security number and my alleged income for the last year. "Of course, I earn more than the rest of this crew. I made \$42,000 without breaking any codes or covenants pertaining to any malicious or mischievous influence I might have on unprepared denizens of the outstations. Frank, what's the penalty for suborning or corrupting the colonies?"

"Interplanetary Code 43 as revised by Supplement 6 states that the minimum penalty is a fine of \$50,000 and three years in the Lunar Prison or the Lopsided Bin. However, the presiding magistrate may, according to his judgment, increase both..." Frank began.

"Turn it off," I ordered. While I reorganized my pocketbook I dropped a yellow card identifying me as a minion of our cultural unit. Clithero gave it a quick study before I picked it up. He might or might not have recognized the symbol—a book lit by a golden torch—but there was no use taking extra chances. If the Venusian goons didn't think we had the protection of Cultural Entity 3, we might find ourselves under a slag heap. Naturally, there'd be an investigation later, but we'd be dead just the same, all except our scribe. The locals could assert we'd wandered outside the dome and got broiled. I wanted to keep our cells together.

ANYWAY, Clithero's tone changed. "A sum of \$250,000 each if you just revise *'Highways to Happiness'* in judicious spots."

"Such as which?" I asked.

"Take out some of the references to democracy and all that sort of rot. Add problems about the unusual rewards for merit exercised by the gifted."

"Such as yours?" Obviously, I don't believe that everyone is as clever and agile as everyone else, mentally or physically, but for the sake of convenience, the best assumption is that all men are born equal in the eyes of God. The only alternatives are total chaos and total dictatorship.

"Now gentlemen." He showed no real annoyance. "Pause, please, and accept an apology; I underestimated you. Mr. Scully, how did you learn about the possible irregularities in the ore shipments?"

"You have fifty thousand on the line for each of us?"

It was his turn to dig into his pocketbook. "I have three certified checks for that amount and three for a hundred thousand." He smirked and handed us the three little ones. "You sold out cheaply, my friends."

"Cute." I smiled blandly. The sharpies of this planet might be clever in their way, but they didn't realize how much it cost to operate a unit like ours. If they had, we might all have been dead on arrival; a lithium bomb can kill even Frank.

Maybe Clithero thought he could bribe underpaid Earth servants and furnish them with enough loot to retire. I don't know. I never found out, from the objective point of view. Sometimes I think he had us figured right, but lost his head when the pressure

was on. "Well, we knew something when the diggers loafing in the booze joints complained about the extra hour added to their work day."

"**T**HANK YOU, gentlemen." He forced himself into a mock bow. "We expect you to comply."

"If not?" I was bland again and offered him ersatz rye.

"We shall be forced to confiscate your romantic arithmetic—and you." He left blandly.

"Frank," I said, "make out some new problems. Multiply the value of two intelligent, ruthless sharks by the square of their malfeasance. Under such conditions how many man-hours will a digger live before the fatal radiation crumbles him?"

"Are you serious?"

"Of course not. The problems are too tenuous; you know me. Invent some others about the superiority of the masters. Send them out to all the high potentates to demonstrate the progress we're making on the revision."

"But don't put them in the book?"

"Of course not."

We skidded along a few more days and sold a few thousand more copies of the happiness book, the old edition. Even the workers who slaked their thirst in the foul dungeons argued about the squaring of X multiplied by Y days at Z democratic units

per hour. A TV executive got my fist on the dotted line to use, for a dollar a year, all the material he wanted from Frank's text. Naturally, I had to pass on the final scripts, but I let the garblings stand. At this time, Venus needed doubt rather than final answers. Everything worked out till the axe fell.

THE AXE had to fall sometime. Clithero, or Briquette, or the Bureau of Thought Analysis, found no revision spurting off the automation lines. Clithero again humped into our quarters and made noises.

"You have broken your word!" He waved a finger at us.

"What promise did we give you?" I was bland, of course.

"You took our checks."

"Here's mine," Kent said. He tore it into triangular pieces. They swirled downward at the rug.

"I don't have to eat." Frank gave his to our visitor.

I lit a fresh stogie with mine. "What's the complaint? We have a new version of our book ready—a few days late due to editorial problems. We put it into the hands of our agents today. Here's your copy, sir."

"Our leader has lost his patience. Do not try to leave without permission." The new fooler under his arm, Clithero walked out stiffly.

IN A FEW hours we had an invitation to the Arena. From random conversation, I'd learned that it seated half a million and was patterned after the old stadia of Rome. This time no armored gladiators would fight, but there would be modern exhibitions of skill, precision marching and patriotic demonstrations. Everybody who was anybody would appear to demonstrate preparedness against the octopi rumored to attack the planet any day. A few dissenters growled but said nothing. One loose mouth in a tavern alleged that the invaders from the Black Hole were a fiction invented by the thought police.

By talking to a digger who'd lost half his face in a mine blast, I learned that an invitation was a command. So, after making a few restricted video calls and finishing the last of our business, we came to our box seats near Briquette's enclosure, protected against stray missiles by a force shield.

About six thousand Fundamental Numbs, the strongest faction of that breed, paraded in columns. Assembled into a square they sang the Venus song, "We Are For Venture." I forget the words, but they sounded like a college hymn, heavy with moral significance. The Prompts did a tableau showing farmers amid a clutter of machinery and a field of synthetic corn-

stalks. About two hundred unknowns, who waved banners entitled "Down with Brickbat," tried to enter the west gate. The guards subdued them and marched them off.

CLITHERO pushed aside the skinny herald who ordinarily announced the events, and grabbed the microphone. As half a million pairs of eyes stared at him, he shouted, "Lynch the angels of hell. The seducers of our innocence. '*Highways to Happiness*' is a vile book, fraught with evil words to take us away from our duties. Work, for the night is coming. A man eateth only by the sweat of his brow. Verily, I say unto you that the children of light are wiser than the children of darkness."

I almost swore at the Biblical corruptions, barren, bleak words echoed by the shouting of an organized clique. In his attempts at more power, Briquette and his minions had pulled out all the emotional stops.

A big cheering section in the center of the opposite side of the field barked out:

Frank is too frank.
He's a nasty crank.

I wondered who'd written the alleged poetry, but I was preoccupied with a thought. They hadn't picked on Scully, the chief malefactor, because our writer had a little touch of human vanity. He'd written

"*Highways to Happiness*" under the name of Knarf. No code expert needed to spend more than a minute to break that anagram down.

I COULDN'T have done anything if I'd tried. The mob swarmed over the retaining wall and snatched up our robot. They found him a little heavy but carried him to the center of the field. Another swirling of rabble furnished the wood while assorted zealots, who had to find a scapegoat, put him on a pole erected over a pile of waste covered with oil. They shrieked in glee when the flames roared up and covered him in smoke.

Sometimes I wish our bureau would furnish us blasters or force shields. We are a moral suasion group, with no defense except our wits and Frank's endurance. At least two million pounds of pressure are needed to squash our walking library, and he can dive into molten lava and come out whole. When the emotional jag of the mob expired and stillness brooded over the Arena, he was as good as new. I rapped his head to tell him to wake up.

Of course, Briquette's musclemen followed us to the airlock, which I closed with a small uranium bomb picked up on the gray market. The pilot from our bureau was on time, and we took off over a jigsaw mountain. I studied my new orders.

"Hey, Frank," I called. "Think you can write a new book to instruct the natives of that planetoid, New Mobile, to keep from cutting one another's throats?"

"Technique, please," he droned.

"The crooked syllogism and confusion. How do you feel?"

"Feel? I am intact. The fire was only 1200 F."

I PASSED out a compliment to Kent. "You did a good job in the disappearing ink contract."

"I'm glad I didn't have to meet the country club girls this time." He smiled back, blandly. "Very enervating."

"I tried to save you from the supreme sacrifice." We'd issued a hundred thousand copies of the new version of "*Highways to Happiness*". To a degree, all of them conformed to the dictator's edict; that is, we had new problems. The collation was the same as before, with a blank to the left of each page of text, "so the individual computer may solve his own problems with ease." In a month, the print would turn blank on every second page and the letters on the blank page would emerge to give our real ideas.

"Did our agents get rid of them, Kent?" I asked.

"The thirty-per-centers—Numbs and Prompts—buried them in the gardens. Everybody there tries to grow something, even if it shrivels. In

memory of Earth ancestors. The little disturbing packages will turn up at spading time."

I arose from my acceleration basket and found my last cigar. "Frank, how long do you think this civilization will last without a fissure?"

"The fissure is already here. The best of the Numbs and Prompts are combining into the Presumers. I have taken a poll."

"What do they presume?"

"That every mere human is equal in the eyes of God. I give Mr. Brickbat a short time before his minions think. Gentlemen, in my opinion,

Cultural Entity 3, a subdivision of Bureau 32, had fulfilled its mission."

"We didn't make any money on the deal." I frowned.

"There are other goals. I calculate that a flux will come on Venus in 5.321 Earth years." Frank's words came with the regularity of a metronome. "Some precipitate event will touch off a fuse. Evolution will occur."

"Damp your circuits," I said. "We land in 4.4 Earth days. Get the smiles ready. Make 'em bland."



Inside Science Fiction

by Robert A. Madle

(concluding the survey of British fan magazines)

I WANT to say a little more about *Ploy*, which is edited by Ron Bennett. (You can get a sample copy by sending 15¢ to Bob Pavlat, 6001 43d Avenue, Hyattsville, Maryland.)

Dennis Tucker, a fan of the old school, produces an interesting column rather regularly, "The Upstairs Basement," in which he discusses things such as his efforts to convert an acquaintance of his to science fiction, and asks pertinent questions like, "Are conventions really necessary?" Then, every once in

a while, a short story is printed. Dave Jenrette, who is noted for building science fiction stories from the basest material (barroom or, if you will, pub jokes), showed up in a late issue with a clever little yarn, "Beyond Saturn." The magazine is well illustrated throughout, quite often by Arthur Thomson ("Atom"), whose cartoons are delightful indeed. *Ploy* receives all sorts of interesting letters, and a large letter department is always included. *Ploy* is the typical British fanzine.

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THE LITTLEST

Science Article

by Isaac Asimov

At times, science has to accept things on faith, in hope that confirmation will come later. This isn't a matter of charity—it's a desperation decision; the alternative is to throw out some fundamental laws!

AS YOU KNOW, you and I—and everything else on Earth—are being bombarded constantly by cosmic rays. These consist of high-energy particles that plow right through the atmosphere (giving rise to almost-as-energetic "secondary radiation" each time one collides with an air molecule head-on) then through us and on into the ground. The more energetic particles can bull their way yards deep into the earth (or ocean). If they get the chance, some can penetrate six feet of lead.

As, perhaps, you may not know, we are also being bombarded by other particles called neutrinos. Hold out your hand in the direct sunlight and several trillion neutrinos, originating from the Sun, will be hitting it each second and moving right through. They have already moved through the depth of the atmosphere with virtually no collisions or secondary radiations. Nor do they collide with anything in your hand.

You think that cosmic rays are penetrating, because they force their way a few yards into the Earth? Neutrinos, having passed through the atmosphere and through your hand, calmly pass through the whole Earth—from end to end—and are neither deflected nor affected in the process. This means that you could hold out your hand in

the shade, in your house, in your cellar, in a coal mine and receive the same neutrino bombardment. In fact, another man on the night-side of Earth would have his hand penetrated by the same neutrinos (if he were standing in the right place) that penetrated your hand.

Neutrinos can (and do) pass through the Sun, or through a white dwarf star as easily. It has been calculated that it would take sixty light-years (300 trillion miles) of solid lead to stop the average neutrino. As far as the neutrino is concerned, the Universe is just about empty space.

How does the neutrino do it?—By being small. By being the littlest.

THE COSMIC ray is an elephant, forcing its way blindly through the thick underbrush, trampling down the plants, knocking over the young trees, until the effect of a few large trees upon him brings him to an exhausted halt. The neutrino is a mosquito flying through the gaps between the leaves, and never knowing that a jungle surrounds him.

Now scientist can't see subatomic particles in themselves; they can only observe the effects of collisions between particles. It is as though an observer from an airplane could not see an elephant but could see the trees

swaying, and hear the noise of the crashing, and deduce an elephant. A neutrino, however, would be the mosquito—and how could our observer in his airplane know that a mosquito was passing through the jungle, when not a leaf quivers because of the passage?

Well, for twenty-five years, scientists had to accept the neutrino on faith. It was introduced first as a bugger factor, as something to force a few recalcitrant facts to accommodate themselves to a beautiful theory. That wasn't very pleasant thing, but the choice lay between temporarily accepting the neutrino, or giving up some fundamental laws of nature. And there was nothing to take the place of those fundamental laws.

Given the choice between chaos and faith, the men involved did what men nearly always do: They chose faith.

Let's see how this came about.

THE DRAMA takes place in the atomic nucleus which is made up of a number of each of two kinds of particles, protons and neutrons. (The nucleus of the simplest type of hydrogen atom, hydrogen-1, is the only exception. It is made up of a single particle, a proton.)

The neutrons and protons are about equal in mass, and are fairly heavy particles. An individual neutron or proton

is about as heavy as a hydrogen atom, and about 1/250th as heavy as the heaviest atoms known. The difference between the neutron and the proton is that the neutron does not have an electric charge, while the proton does.

Outside the nucleus of an atom are a number of electrons (one for each proton within the nucleus). The electron is a much less massive particle than either a proton or a neutron—only 1/1837th as massive, in fact. It is an electrically-charged particle. Although an electron is much smaller than a proton, it has precisely the same quantity of electric charge.

The charge of an electron, however, has properties that differ from those of the charge of a proton. For instance, a proton will attract an electron but repel another proton. (An electron will repel another electron.) Therefore, to differentiate, a proton is said to have a unit positive charge, while the electron has a unit negative charge. (The adjectives "positive" and "negative" were assigned arbitrarily—by Benjamin Franklin.)

There is a fourth particle called the positron; this is just like the electron in mass, but it has a unit positive charge identical with that of the proton. Positrons do not exist in any significant numbers in the world about us. Some have been formed in the

laboratory, through nuclear reactions, but these exist only about a millionth of a second or so before colliding with electrons. As a result of the collision, the positive charge of the positron and the negative charge of the electron cancel each other out; nothing is left but a pair of gamma-ray photons (which are pure energy and have no charge).

NOW, LET'S look at the nucleus again. Various combinations of neutrons and protons can form stable systems that, if undisturbed, will exist unchanged forever. These make up the various stable isotopes of eighty different elements.

On the other hand, atoms exist in nature—or can be formed in the laboratory—with nuclei made up of combinations of neutrons or protons that do not make up stable systems; either there are too many neutrons and too few protons, or vice versa. These make up the radioactive isotopes.

There are several ways in which the balance can be redressed. Suppose a nucleus contains too many protons. To adjust that situation, it might help if one of the protons could change itself into a neutron. The result might then be a stable combination.

In order for a proton to change itself into a neutron, the proton must get rid of its

positive charge. It can do this by expelling the charge from the nucleus, in the form of a positron—which will carry away all of the proton's charge, but hardly any of its mass. What is left of the proton is a neutron.

The opposite situation would be where an unstable nucleus is the result of too many neutrons. Here a neutron can change itself into a proton, as one way of correcting the situation; in order to do this, a neutron must gain a positive electric charge. The obvious way to bring that about, is to shove a positron into the neutron. However, as I said earlier, there are virtually no positrons around; so the solution, while obvious, is not practical.

FORTUNATELY, ejecting a negative particle is the same as absorbing a positive one (just as $-(-1)$ is equal to $+1$, or cancelling a dollar debt amounts to finding a dollar in cash). Therefore, the neutron-heavy nucleus forms and expels a negative particle—that is, an electron. In this way, the neutron is converted into a proton, just as surely as if it had picked up a positron.

Actually, none of the naturally-occurring radioactive nuclei suffer from a proton-excess of the type that results in the ejection of streams of positrons. (Certain radioactive nuclei formed in

the laboratory do, though.) The naturally-occurring radioactive nuclei all suffer from a neutron excess, and either give off streams of electrons or break down by other methods not relevant to the point under discussion.

The radiations given off by uranium compounds were first discovered in 1896; by 1900, they were found to consist of three different types. Since the true nature of the radiations were not known at first, these were called simply alpha rays, beta rays and gamma rays after the first three letters of the Greek alphabet.

It was the nature of the beta rays that was first determined (within a year, in fact); these turned out to be streams of speeding electrons. For this reason, radioactive changes involving the ejection of either electrons or positrons are still referred to as "beta-decay processes."

FOURTEEN years after its discovery, beta-decay emerged as a frightening villain.

You see, if there is a fetish that physical scientists have, it is the law of conservation of energy. You can change one form of energy into another, but neither you—nor anything else—can change the total amount of energy in a system. If this is not so, then a great many deductions made by scientists are wrong

—or, if right, must be explained on a different basis from that which now prevails.

For a while, when radioactivity was first discovered, scientists felt a sickening blow; it seemed that energy was being produced out of nothing. However, they had faith that some explanation would show up; and, after nine years, it did.

In 1905, Albert Einstein came up with his $E=mc^2$ formula, which showed that a tiny bit of mass was equivalent to a tremendous quantity of energy. The energy produced by radioactivity did not come out of nowhere, therefore, but was accompanied by the destruction of just a tiny bit of mass—so small a bit as to be undetectable by techniques then available.

As scientists developed techniques to measure the amount of energy produced, and the amount of mass lost, in a particular nuclear reaction, they found that the two balanced in exact accordance with the Einstein equation. For instance, when an electron and positron annihilated each other, so that gamma rays was exactly what you would expect from the destruction of the combined masses of the electron and positron.

THERE WAS just one exception to this happy state of affairs: beta-decay.

When a neutron in an atomic nucleus spontaneously changed into a proton, the nucleus as a whole lost a certain amount of mass. Part of the mass appeared in the form of the electron. The rest of the mass appeared (or should have appeared) as kinetic energy; that is, in the motion of the electron. (The violence of radioactive breakdown is evident from the fact that the energy available is enough to drive electrons out of the nucleus at some nine-tenths the speed of light or more.)

Now, since the mass loss in the neutron-proton change for a given nucleus is always the same, and electrons are all identical, there should always be the same kinetic energy involved, too. Each electron kicked out of a nucleus in a particular nuclear reaction ought to be moving at precisely the same velocity. What's more the velocity can be calculated quite precisely.

Well, the electrons *don't* all come out at the same velocity; the calculated velocity merely turns out to be a maximum. No electrons are shot out at velocities greater than that predicted by theory. (For this much, scientists have always been thankful.) Most, however, move along at speeds slower than that predicted by theory. Moreover, electrons can move at almost any slower speed. This was referred to as the "continu-

ous beta-ray spectrum"—and by all that was right and holy, it ought not to have existed.

THE CONTINUOUS beta-ray spectrum was discovered in 1914 by the British physicist, James Chadwick, and it was almost at once the source of serious soul-searching among scientists.

What happened to the extra energy? What happened to the energy difference between that which the electron ought to have had if it were moving at its proper velocity, and the lesser amount it was carrying when it moved at its actual velocity?

The extra energy simply could not be detected. It was lost; it was gone; it no longer existed. Had it been destroyed?

Some physicists said desperately that it was destroyed—when the sub-atomic level was reached, energy just wasn't conserved any more, that was all.

Well, maybe so, but the law of conservation of energy had been so useful to scientists—had become such a tame and well-behaved pet—that scientists, generally, could not bring themselves to part with it. They hung on loyally, hoping that someday, somehow, the missing energy would again be found—that someone would come along to save the day as Einstein had done earlier.

THEY WAITED more than 9 years this time. It was 17 years before an Austrian-born physicist, Wolfgang Pauli suggested (in 1931) that when a neutron was changed to a proton, two particles were produced. One was the familiar electron, which carried off some of the energy; the other was particle X, which carried off the rest of the energy. Particle X, Pauli said, was undetectable; thus, it seemed as though the energy that Particle X was carrying had just disappeared.

The reasons for its undetectability weren't hard to see. Particle X couldn't have any electrical charge, since the electron carried all the charge that was available; consequently, particle X was neutral. Secondly, Particle X could have scarcely any mass, because the amount of missing energy that had to be accounted for was too small to be transformed into more than the tiniest fragment of mass, even if all the available energy went into mass and none into motion. At most, particle X could only have 1/500th the mass of an electron; and probably, it had much less mass still.

Now sub-atomic particles are detected by way of either their mass or their charge. It is the mass of a particle (and its consequent momentum as it speeds along) that smashes electrons out of atoms with

which the particle collides and produces charged atoms, or ions. These, in turn, can condense water droplets visibly about themselves, or can carry an electric current. It is the charge of a particle that neutralizes some other particle of the opposite charge, and produces energy in quantities that can be detected. Without charge, and almost without mass, Particle X has no handle by which to be gripped.

By 1934, Enrico Fermi, the Italian physicist (who, eight years later, built the first self-sustaining nuclear reactor), worked out a theory and an equation to account—more or less—for the distribution of electron speeds that was actually observed, using as an assumption the existence of Particle X.

Fermi wanted to call Particle X, the "neutron", because it had no charge. However, in 1932, the heavy neutron in the nucleus was discovered; so Particle X was called the "neutrino" or the "little neutron."

NEUTRINOS balance the books in another way, too.

You see, sub-atomic particles possess certain properties which can be dealt with mathematically, by assuming that the particles spin—that is, that the particles have angular momentum. Fermi also worked out a theory about

these spins and according to him the "quantum number" representing the spin of neutrons, protons, electrons and positrons must always be $\frac{1}{2}$. It can be $+\frac{1}{2}$ or $-\frac{1}{2}$, depending on whether the particle is spinning in one direction or in the other.

Let's say a neutron spin has the value $+\frac{1}{2}$. In beta decay, the neutron is converted to a proton, and an electron is ejected from the nucleus. The proton and electron, let us say, each has a spin of $+\frac{1}{2}$.

In that case, we start off with a neutron with a spin of $+\frac{1}{2}$, and end up with a proton and an electron which, together, have a total spin of $+1$. Angular momentum has not been conserved and angular momentum must be conserved—just as energy must be conserved in general must.

Again, the neutrino comes to the rescue. It is produced along with the proton and electron, and it must have a spin of $-\frac{1}{2}$. Now the three particles produced by the changing neutron have spins of $+\frac{1}{2}$, $+\frac{1}{2}$, and $-\frac{1}{2}$; added together this makes a total of $+\frac{1}{2}$. This is the same as the spin of the original neutron. Angular momentum has been conserved, thanks to the neutrino.

(The particular signs I used, pluses and minuses, aren't important. No matter how pluses and minuses are arranged, it can be shown

that unless a neutrino is assumed, angular momentum can not be conserved.)

The same situation applies to a proton that converts itself into a neutron, by the elimination of a positron. Again a neutrino is needed to conserve angular momentum. The reasoning is the same as before.

But now a new refinement comes up.

ACCORDING to equations first worked out by the English physicist, P. A. M. Dirac, in 1930, particles with a spin of $\frac{1}{2}$ ought to have "anti-particles" as a kind of mirror image. As far as charged particles are concerned, the nature of what a mirror image must be seems simple enough. The anti-particle would be one that is identical with the particle in every respect but charge.

For instance, the positron (discovered four years after Dirac's theoretical prediction) is an anti-electron. The positron has the same mass as the electron and the same magnitude of electric charge. It is just that the positron's charge is positive and the electron's is negative.

In 1956, (twenty-six years after Dirac's prediction), the anti-proton was discovered. (The machinery necessary to concentrate energy sufficiently to form an anti-proton was only developed in recent years.) The anti-proton

has the mass of the proton, and the same magnitude of electric charge. It is just that the anti-proton's charge is negative and the proton's is positive.

Since the neutron and neutrino have spins of $\frac{1}{2}$ also, there must be such things as anti-neutrons and anti-neutrinos. For instance, an anti-proton, by expelling an electron, ought to become an anti-neutron.

Now there is a kind of conservation of particle/anti-particle pairs that helps at this point. Particles and anti-particles always disappear together, as when an electron and positron enter into mutual annihilation and form gamma rays. Particles and anti-particles always appear in pairs, as when a gamma-ray—on hitting an atom—is sometimes destroyed (as pure energy) and converted into an electron and positron (both, not just one).

IT FOLLOWS from this that, in beta-decay, when an electron is created and ejected from a nucleus, a balancing anti-particle (in this case, an anti-neutrino) should also be created and ejected. On the other hand, when anti-electrons (positrons) are created and ejected, an ordinary particle (in this case, a neutrino) should be created and ejected also.

Thus, nuclear reactions that involve changes of neu-

trons to protons—uranium fission, for instance—produce streams of electrons and anti-neutrinos. At a distance of fifty feet from a reactor containing 90 pounds of uranium-235 operating at 50,000 kilowatts, about two trillion anti-neutrinos per second are hurtling through every square inch. (The electrons, you see, can be shielded off, but not the neutrinos. Of course, the neutrinos pass through people harmlessly and represent no health hazard at all.)

On the other hand, nuclear reactions that involve 'changes of protons to neutrons—hydrogen fusion, for instance—produce streams of positrons and neutrinos.

But in the absence of charge, what is the difference between a neutrino and an anti-neutrino? Until quite recently, scientists could see none and spoke simply of the neutrino.

Recent experiments (1952 through 1956) by a variety of experimenters; on isotopes such as neodymium-150, may have settled that matter. Neodymium-150 is a long-lived radioactive isotope that, in breaking down, emits two electrons and two neutrinos to become samarium-150. It is possible to calculate, theoretically, what the half-life of neodymium-150 should be in an instance where a neutrino and anti-neutrino were identical particles, and what

it should be in an instance where they were non-identical particles.

Apparently, the observed half-life (some few million trillion years) has been shown to be quite close to the one calculated for the instance where the anti-neutrino was assumed to be different from the neutrino. Similar experiments involving other long-lived radioactive nuclei such as calcium-48 gave similar results.

Granted the difference between neutrino and anti-neutrino, however, there still seems no decision as to exactly what the difference consists of.

ON EARTH, matter is made up only of the ordinary particles. If anti-particles are produced artificially (notably the positron and the anti-proton) they last a millionth of a second or less before interacting violently with the ordinary particles by which they are surrounded.

However, there may be other worlds where atoms are made up exclusively of anti-particles. Such matter is now spoken of as anti-matter; a few years back, it was called contra-terrene matter.

One can never tell of matter in complete isolation (except for the light or other electromagnetic radiation it emits) whether it is made up of ordinary matter or of anti-matter. The only test is to

bring it in contact with ordinary matter. If nothing out of the way happens, the unknown is also ordinary matter. If there is the grandest explosion you ever saw, the unknown is anti-matter.

The original creation of the atoms must have involved the creation of equal numbers of particles and anti-particles according to the principle of conservation of particle/anti-particle pairs. That is another way of saying that equal quantities of matter and anti-matter must have been created.

The British astronomer, Thomas Gold, contends that anti-matter must involve anti-gravity, too (science is going to steal s.f.'s thunder, by Space). Matter and anti-matter, although each holds itself together by gravitational forces, would thus repel one another and tend to exist in separate conglomerations.

It is unlikely that both matter and anti-matter would exist within a given galaxy as separate sub-galactic conglomerations. There is too much "mixing" within a galaxy as the megayears pass. But there may be galaxies and anti-galaxies. (Occasionally galaxies collide and, in doing so, give rise to incredible amounts of radio-wave emission. This may just be due to the ordinary effects of two heaps of interstellar dust merging and flowing through one another. But perhaps the possibility of

matter/anti-matter collision is worth keeping in mind.)

Then again, the original matter/anti-matter may have separated completely into two Universes, so to speak, a Cosmos (ours) and an anti-Cosmos. Each may be enclosed in its own space-time continuum and therefore be beyond detection by the other.

But back from the biggest (the double Cosmos) to the littlest (the double neutrinos) and let's move on.

ALL THIS is very well—as bookkeeping. The neutrino and anti-neutrino had balanced the books three separate times. They had conserved energy; they had conserved angular momentum; they had conserved particle/anti-particle symmetry.

But it was still only bookkeeping. In 1956, forty-two years after the continuous beta-ray spectrum had been discovered, and twenty-five years after the neutrino had first been postulated, the particle had not yet been detected. In fact, things had grown worse. Now there were two such particles neutrinos and anti-neutrinos—both undetected.

It was bad. No matter how impeccable the logic that supported them, the neutrino and anti-neutrino bore the stamp of the "bugger factor".

Physicists obviously weren't going to rest until

they had detected the indetectible. . . But how?

IT COMES down to a matter of statistics. Earlier in the article, I said that it would take sixty light-years of solid lead to absorb the average neutrino. The average neutrino. A particular neutrino might go through a thousand light years of lead without being absorbed. Another might be picked up in the first light year. Still another might even be stopped by the very first inch of the lead.

(As an analogy, I might say that the chances are very good that you can live your entire lifetime without being struck by a meteorite; that all human beings now alive could live their entire lifetime without being struck by a meteorite. Yet there is upon record the case of a woman who was hurt by a falling meteorite. That particular person cannot be helped by reciting the odds against the happenstance. She was *hit*.)

There is a quantity known as the "cross-section." It measures the tendency of a particular sub-atomic particle to engage in a particular type of nuclear reaction. It is called "cross-section" because the sub-atomic particle can be pictured as presenting such a front to the attack of impinging particles.

A typical cross-section val-

ue for the common sub-atomic particle is 10^{-24} square centimeters. In other words, a proton, let us say, behaves as though it would take about six trillion trillion particles like itself to cover a square inch.

A proton is small, no question. But the cross-section of a neutrino, however, has been estimated at 10^{-43} square centimeters. It's like saying that it would take ten million trillion neutrinos to fill the space covered by a single proton. That's how small a neutrino is.

Now the most important thing about a figure like 10^{-43} is not its smallness, but the fact that *it is not zero*. It is small, but finite. And because the cross-section of a neutrino is small, but not zero, the penetrating power of a neutrino is large, *but it is not infinite*.

As long as the penetrating power is not infinite, then one out of so many neutrinos will be stopped by a reasonably thin layer of even ordinary material, just as one human being out of so many will be hit by meteorites.

The "so many" in the case of neutrinos is tremendously higher than the "so many" in the case of people; but the number of neutrinos that exist is still higher as compared with the number of people.

Now let's see how neutrino absorption can be arranged and detected.

WHEN A NEUTRON breaks down to a proton, an electron and an anti-neutrino are ejected from the nucleus.

The reverse situation should also hold. An anti-neutrino and an electron should be able to enter a nucleus, strike a proton, be absorbed by it and convert it into a neutron.

The absorption of an electron is the same as the emission of a positron (I went through this bookkeeping business at the beginning of the article). So we can also say that an anti-neutrino ought to be able to strike a proton and convert it into a neutron, with the emission of a positron.

This is the situation, then, that theory predicts:—Begin with a uranium fission reactor emitting a stream of anti-neutrinos. At another spot, imagine a substance like water, which is rich in protons. (Each molecule of water contains two hydrogen atoms and one oxygen atom and the nucleus of each hydrogen atom is composed of a single proton.)

Uncounted trillions of anti-neutrinos penetrate and pass through the water. (Some 200 quarts of water were eventually used in tanks measuring about two yards by one and a half yards and about three inches thick in the direction of the anti-neutrino stream.) Every once in a while, one

anti-neutrino out of a tremendous number strikes a proton head on, so that a neutron and a positron are produced simultaneously. It was calculated that this should happen about 25 times an hour in 200 quarts of water.

The trouble with this is that all sorts of subatomic particles are always flying about everywhere, even under the best of conditions. Nuclear reactions are always going on—if only because of cosmic rays and the Earth's natural radioactivity, to say nothing of stray particles and radiation from the nuclear reactor used as an anti-neutrino source.

So though theory was clear and simple enough, there remained the engineering problem of detecting what theory predicted ought to be detected. It was like listening for an occasional whisper in a boiler factory.

THE FIRST attempt in this direction was made by Clyde L. Cowman, Jr. and Frederik Reines of Los Alamos in 1953. Results were heartening, but the interference of background noise (which remained 20 times as high as the neutrino whisper) left matters uncertain.

So it was necessary to reduce background noise still further (and eventually the experiments were conducted deep underground where the background noise was finally

reduced to only one-third the neutrino whisper).

Furthermore, the detecting apparatus was designed and set up so as to accept only one particular combination of events—a combination of events that could be the result of the collision of an anti-neutrino and a proton *and of nothing else*.

The positron that is produced by the reaction combines almost at once with an electron, producing two gamma-rays of a known energy content. The neutron that is produced along with the positron lasts a while longer, and is then captured by a quantity of cadmium compound present in the water for the precise purpose of capturing neutrons. The result of the neutron capture is the production of another pair of gamma rays of a different, but again known, energy content.

This is a pretty characteristic pattern. First, a pair of gamma rays of known energy; then, after a precisely-judged interval, another pair. The chances that some other nuclear reaction—or series of nuclear reactions—might give rise to exactly the same results, by sheer coincidence, is very small. The chances that the same coincidence will result in a repetition of such a thing several times an hour is so small it may safely be disregarded.

Well, to delay no longer,

the experiment eventually succeeded. The necessary gamma-rays were detected in just the manner, and in just the frequency, that theory had predicted in advance. The only possible conclusion was that absorption of anti-neutrinos by protons was being observed, and the energy that had been missing ever since 1914, had finally been trapped and detected.

(The 1956 unveiling of the fact in the various learned and semi-learned journals had it that the "neutrino" was finally detected. Actually, it was the anti-neutrino, but that doesn't matter. At this stage of the game the existence of one makes certain the other.)

OF COURSE, all this has been a great triumph for the scientific method, and for the intellectual capacities of the human mind as represented by half a century of brilliant investigators. Still, leaving that to one side, is there any practical use to which this can be put?

The coldly-sensible mind of today must admit no practical use seems possible to the naked eye. However, since I have a notoriously senseless mind, I can't help but speculate.

A respectable fraction of the Sun's energy is carried off in the form of neutrinos. You see, the Sun's energy is obtained by the conversion of

four hydrogen nuclei (that is, four protons) into a helium nucleus (which consists of two protons and two neutrons.) In the process, two protons must be converted to two neutrons, while two positrons and two anti-neutrinos are emitted.

The protons, neutrons and positrons all struggle within the Sun's interior and, for the most part, do not escape—nor will they escape, short of nova-formation. Radiant energy formed in the process works its way very gradually to the Sun's surface and leaks out not at all quickly. (Temperature at the Sun's center is in the millions of degrees; at the surface only in the thousands.)

Any neutrinos which are formed, however, go shooting out of the sun in whatever direction they happen to be emitted, carrying a portion of the produced energy with them.

IN THIS WAY, the sun produces about 140,000,000,000,000,000,000,000,000,000,000 (one hundred forty trillion trillion trillion) neutrinos each second.

Only one neutrino out of nearly a billion manages to score a bull's-eye on the small speck that is the Earth, ninety-three million miles away; but this still means that 200,000,000,000,000,000,000,000,000 (two hundred thousand trillion trillion) neutrinos are hitting Earth each second.

This neutrino stream represents frozen energy. It will keep moving for an indefinite period without any significant number of neutrinos being absorbed and their energy utilized. Now is there any way man can tap this energy source that is otherwise wasted? It is there for the taking, whether clouds cover the sun or not; whether the sun is over head or on the other side of the Earth; whether we are on the Earth's surface or deep in a mine. Of course, the catch is in the phrase "for the taking." How do you take it?

Then, too, the Sun is only one out of a hundred billion stars in the galaxy, and there are at least a hundred billion galaxies in the Universe. We can guess at the figure 10,000,000,000,000,000,000,000,000,000,000 (ten billion trillion) as representing the number of stars in the Universe.

The Sun is an average star; so if each star can be considered as a neutrino source equal to the Sun, then 1,400,000,000,000,000,000,000,000,000,000,000,000,000,000,000 (1.4 trillion trillion trillion trillion trillion) neutrinos are being produced every second in the Universe as a whole.

A tidy sum.

And consider this: If the Universe has been in existence for six billion years, as some believe, and if the neutrino turnout has been constant in that interval, then

the total number of neutrinos produced in all the Universe in all of created time is about 300,000 (three hundred thousand trillion trillion trillion trillion trillion trillion). An even tidier sum.

EVEN IN SIX billion years, scarcely any of those neutrinos can have been absorbed; so they are all careening about in space, swooping round and round the expanding curve of an expanding Universe.

Of course, the size of the Universe is such as to dwarf even very tidy sums indeed. If we assume the Universe to be a billion light-years in diameter, and all those neutrinos to be spread out evenly, it turns out there are only 20 neutrinos for every cubic foot of space.

However, who's to say that

the neutrinos spread through space uniformly? They may be affected by gravitational fields (this is bit piece of knowledge that has not yet been extorted out of nature); if so, streams of neutrinos may be trapped within Galaxies, spinning round and round the Galactic centers; and in the streams, neutrino density may be much higher—much, much higher than 20 per cubic foot.

Somehow I can dream of ships, someday, traveling the neutrino currents the way sailboats travelled ocean currents once—picking up their energy from the neutrinos themselves; independent of suns; with infinite cruising range, and infinite capacity to be independent worlds, if the ships are only large enough.

...Well, I said I had a senseless mind, didn't I?



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FLUOROCARBONS ARE HERE TO STAY!

by Donald E. Westlake

illustrated by MURPHY

What happened to the Smith Wrecking and Salvage Company when it tried to tear down the all fluoryl plastic City Hall is enough to make a man with a heart of stone laugh.

"Lewiston, Massachusetts. Population, 6,023, census of 1960. Main industry, the production of fluoryl plastics. Founded 1798 by Emmanuel Lewis, American farmer of English stock. Opportunities for new businesses, especially in the service trades. Main tourist attraction, City Hall constructed in 1958 completely of fluoryl plastics, as advertisement of town's main industry." ("Guide to American Cities", 1963, Wolkin, Ehrmbach and

Company, New York, 1963.)

THE CITY COUNCIL of Lewiston decided, after long deliberation, to build a new City Hall. The present one, while drawing tourists, was also drawing trouble. There were constant traffic jams in front of the building; broken penknives littered the lawn, left behind by souvenir hunters who had made unsuccessful attempts at chipping off a piece of wall. Besides, the conservative element in the town



was loudly in opposition to, "the City Fathers meeting in a three-story publicity stunt."

Replacing a City Hall isn't, normally, too impossibly difficult a task. All it involves is the contracting of an architect (who listens to everything you want and then goes ahead and does what *he* wants), the opening of bids for the construction of the new City Hall (with Cousin Jamie assured of the job, of course, but that isn't admitted publicly), and the tearing

down of the old City Hall to make way for the new one.

Tear down the old City Hall. In the words of the Bard, there's the rub, and quite a rub it is.

Perhaps you haven't heard of the new fluoryl plastics. They are compounded of fluorocarbons, a combination of fluorine and carbon. The process involved is a simple, if puzzling, one. A hydrogen-fluorine compound is placed in a vat with a hydrocarbon; a few volts of electricity are

sent through the vat, and what's left is fluorocarbon and free hydrogen. To date, no one's been able to explain the whys and wherefores. The only thing sure is that it happens.

IN THE EARLY fifties, non-burnable paints were made of these fluorocarbons, among other things, and experimentation was begun on a plastic made of the substance. The result: fluoryl plastic.

Fluoryl plastic is indestructible, in the only sense of the word. It won't burn, won't crumble, won't decay, can't be broken into fragments, and will not leave the original shape it was molded in, no matter what is done to it. It is, in the language of the wondering scientists, completely stable.

The City Hall in question was constructed entirely of this plastic. The outside walls were gleaming white outdoor fluoryl plastic, impervious to the elements; the inside walls were plastics of quieter colors, but no less resistant. The floors and ceilings were formed by sturdy lengths of fluoryl plastic painted with fluoryl paint to look like wood. The roof of the building, the foundation, all were fluoryl. Even the seams of the building were sealed by a fluoryl cement.

This, then, is the building the City Council planned so nonchalantly to tear down.

A WRECKING crew—the Smith Wrecking and Salvage Company—was called in and put to work. The first weapon they brought to bear was a heavy iron ball, attached by a cable to a derrick, with which the Smith Wrecking and Salvage Company demolished walls. The first time they swung this outsize eight-ball at one of the walls of the City Hall, there was a terrible noise; the ball came ricocheting back from the unmarred wall and crunched into the arm of the derrick, doing to it what had been heretofore been done only to walls.

When the foreman of the crew found out, as he did shortly, he fired the operator for negligence, reported the damage to the office, and led his men indoors for some hand-to-hand demolition.

The office sent somebody out to remove the dilapidated derrick and replace it with a fresh contender; but the foreman and his men just didn't have any success at all with the City Hall.

Not that they didn't try hard enough. They stomped into the place, up the three flights of wide ebony fluoryl plastic stairs to the top floor, and attacked a wall.

It was the first wall in their experience that had ever defended itself. One of the men raised a heavy axe above his head and crashed the edge of it into the wall. Before he

knew what was going on, the axe was going back the way it had come, was bringing him with it, and driving him all the way across the hall—until the axe hit the opposite wall and bounded off to one side. Then the man hit the wall and bounded off to the other side.

Somebody else slammed the wall at the same time with a sledge hammer. Before he could take it up with the union, the hammer had rebounded, sped through his spread legs, and had jackknifed him down and through after it.

IT WAS the same thing everywhere. Axes and hammers of all kinds were bouncing off the walls, as though someone were trying to break a steel girder with a tennis ball. After about an hour of unrewarding effort, the walls didn't have a mark on them. They were still there—and that was something which had never happened in the entire two-hundred-and-six year history of the Smith Wrecking and Salvage Company.

The company was irked, and rightfully so. Their men, their most experienced hands, were threatening angrily to quit; and their reputation was flying away on the wings of Mercury—or fluorine, rather. So they went before the City Council, which was holding its sessions in the one local theater, the Paramount,

and asked just what the City Fathers meant to do about this.

The City Fathers hadn't the slightest idea, and said so. They pointed out to the Smith Wrecking and Salvage Company that it was their job to tear buildings down and not in the sphere of business of the City Council. They also suggested that the Smith Wrecking and Salvage Company get to work pretty damn fast, and get that building down, because they had already engaged the contractor to begin building the new City Hall on the same site come June, which was only two months away.

The representatives of the company left the Paramount Theatre figuratively tearing their hair, but more determined than ever that the City Hall, indestructible or not, was going to be torn down if it took every man and every penny the Smith Wrecking and Salvage Company could scrape together to do it. There's such a thing as honor, you know.

EXPERTS were called in, and they muddled around for a while, looking at the walls of the City Hall through magnifying glasses; inspecting samples of fluoryl plastics under microscopes; and muttering through their Van Dykes. They finally decided that there wasn't a way in the world to tear that

building down. They said as much, pocketed their pay, and left.

The Smith Wrecking and Salvage Company obstinately refused to take their experts' word for it. In their long experience with knocking things apart, not once had they come across anything that couldn't be knocked; and this blasted City Hall wasn't going to be the exception. Not while the Smith Wrecking and Salvage Company was out of the hands of the receivers was this going to be an exception.

They bought some Army surplus flame throwers, hired more men, and went to work spurting flame all over everything. The walls stood there and ignored the whole thing. For three solid days and nights, working their men in eight-hour shifts the clock around, they sprayed the walls with consuming flame. But the flame, unfortunately, didn't consume a thing. It hadn't, by the end of these three days, scorched the walls; it hadn't done a thing to the walls. As far as the walls were concerned, the Smith Wrecking and Salvage Company might have been throwing feathers at them instead of flame.

The company gave up and sold the flame throwers to somebody for about a third of what they'd paid for them. Then they sat back, took a deep breath, and looked at

those walls with hate in their eyes.

BY THIS time, the affair had hit the wire services and the whole world was watching the process, hands cupped politely over mouths. This one was a scream. An independent motion picture producer tried to get permission to make a documentary movie based on the struggle, using it symbolically—man against the machines he has created. A national beer company tried to get the next onslaught put on coast-to-coast television, with said beer company sponsoring, naturally. Both the City Council and the Smith Wrecking and Salvage Company turned all such offers down vituperously and often. They were beginning to feel like peacocks with their tail feathers clipped.

Next, they tried acid. They took the most destructive acids they knew—and a few acids that nobody was sure about yet—and sprayed the walls, drenched the walls, covered the walls with recking layers of these things; they tried the acids one after the other, and later in combination.

The walls just stood there and shrugged the whole thing off. They didn't even shrug, really; they just stayed stolidly silent and indestructible. It was enough to give a man an inferiority complex, a persecution mania, and high blood pressure.

That's the effect violence had on the City Hall of Lewiston, Massachusetts: No effect at all.

The wrecking company was in such a reasonless rage that it went to the extent of suggesting an atomic bomb, but the city fathers clamped down on that idea for the double reason that the resultant radioactivity from an atomic blast would make the whole town uninhabitable for some time—and it probably wouldn't do any good, anyway.

WHEN THE representative of the Smith Wrecking and Salvage Company was told this, in no uncertain terms, he became thoroughly incensed. "All right," he agreed, "no atomic bomb; but how about an ordinary bomb? How about a few sticks of dynamite placed here and there in the building? We'd clear everyone in a three block radius of the building out of the way for a while and just let her rip. If that doesn't do it, nothing will, and I suggest that you gentlemen might just as well go back to your old City Hall and forget about a new one." So said the representative of the Smith Wrecking and Salvage Company.

The City Council thought about it for a while and finally decided it couldn't do any harm; it would have the advantage of getting the Smith

Wrecking and Salvage Company out of everyone's hair, so they said, all right, go ahead and do it.

It took eight days to gather the paraphernalia and get ready for the last decisive siege. Workmen carrying boxes of dynamite trudged endlessly into the City Hall and returned empty-handed for more. The Smith Wrecking and Salvage Company had affixed its good name to a document, guaranteeing reparation for any and all damage done to any property other than the City Hall proper. Everyone in a three block radius was moved to a safe distance. The wreckers were ready to try the last desperate attempt to destroy the Lewiston City Hall.

Reporters, photographers, newsreel cameramen and tourists crammed the town, pouring huge sums of money into the local coffers and cash registers. The town was very happy about the whole thing and the tourists and the newsmen were happy, too. The only ones who weren't happy were the Smith Wrecking and Salvage Company and the City Council of Lewiston, Massachusetts.

Probably the happiest people of all were the owners of Peabody's Plastic Products, maker of the fluoryl plastic which formed the City Hall. While other manufacturers had to talk about laboratory tests in their advertising,

Peabody's Plastic Products had simply to point with pride to the resplendently white Lewiston City Hall, standing serene and unscarred after weeks of the most harrowing treatment—treatment that would have reduced any other building to rubble in hours. Peabody's Plastic Products looked upon the proposed demolition with nonchalance and confidence. They even had a man with a small movie camera recording the occurrence, for future television commercials.

AT PRECISELY noon on the fatal day, the president of the Smith Wrecking and Salvage Company, a man named Smith, personally pushed the plunger that set off all the dynamite inside the building.

To get an idea of what happened then, consider the jet plane. A force is created in the bowels of the plane, a force that is constricted on all sides but one by sturdy walls of metal. Only to the rear is there a clear course. Oddly enough, force prefers the easiest road; and so it streams roaringly out the tail of the jet plane, pushing it forward.

Something along the same lines happened within the City Hall of Lewiston, Massachusetts. A tremendous amount of force was suddenly born within those indestructible walls and found itself restricted almost everywhere by

fluoryl plastic. Only through the windows, whose glass had been long since smashed by frustrated wreckers, could the force find an exit from the place of its birth and a portal to the great world outdoors.

All the force of the explosion, then, went swooshing out the windows; and all the frame houses around the City Hall fell over on their sides with a despairing *crump!* Brick or stone houses flew apart and took off in thirty different directions all at once. Within a radius of about a block and a half, the skyline was suddenly lowered to basement level.

Not that the rest of the town was spared. Walls suddenly folded inward; doors were torn off their hinges all over the city; people were picked up and carried a few blocks by the blast and cameras flew everywhere.

A SURVEY taken later that day showed that only two windows remained intact in Lewiston; and one of these was subsequently shattered by a small boy who was beginning to develop complexes from seeing that one intact pane of glass surrounded by only the jagged reminders of panes of glass.

The other one was broken a week later by a workman, who was putting a pane of glass in an adjoining window, when he fell off his ladder.

Of course, the explosion

cost the Smith Wrecking and Salvage Company every cent it could convert its equipment into, and more besides. But the City Hall still stood unscathed, untouched, undamaged and untroubled by the blast that had emanated from itself to flatten the surrounding territory pretty thoroughly, and put the Smith Wrecking and Salvage Company into receivership—an unusual example of man bites dog. The last threat to the life of the City Hall of Lewiston, Massachusetts had been foiled.

The City Council, in order to pay for the wasted architect's fees—and the other miscellaneous expenses of the proposed but never-to-be-completed new City Hall, blocked off the street in which the City Hall stood alone and untarnished; turned the waste land into a parking lot; and charged tourists twenty five cents each to drive in, park and look at the Indestructible Building. For another quarter, the tourist could go inside the City Hall, wander around looking at the walls and so forth and get, absolutely free, a tiny block of fluoryl plastic for a souvenir.

BECAUSE of the publicity, the tourist trade doubled

within the next few months and practically every tourist wanted the whole works. In time, this became the city's principal source of income, and taxes were lowered point three zero one per cent, which effectively quieted the conservative element.

Later on, another gimmick was thought of. For an additional fifty cents, the tourist could bring his little hunk of fluoryl plastic into the Mayor's office; he would autograph it for the tourist personally, with the tourist's own name on it and a little greeting from the Mayor. This went over so big that within three years the city built, debt free, a mammoth football stadium, just for the fun of having a mammoth football stadium. And every Saturday during football season the local high school played somebody called the Visitors in the mammoth football stadium that held five times as many people as there were in the whole town of Lewiston; everyone sat in the abominably hard fluoryl plastic stands and got a tremendous kick out of it. Oh, yes, the mammoth football stadium, was made of fluoryl plastic. It was indestructible, too.





the winning hand

by William Moeller

It was the biggest gamble in history, and Mark Zorre won, but...

I MET Mark Zorre just before the Third Universal Expansion, sometimes called by more romantic writers the Fourth Great Renaissance—since it was during and immediately following these expansions of man into new territory that he experienced his most magnificent moments.

The Expansion was to start in eleven months, at the time of my meeting with Zorre. The preliminary announcement had been made some four years earlier, and Zorre had in the meantime accumulated a fleet of twenty spaceships to take part in the Expansion. During the final year before the starting signal, he gathered and instructed the officers and crews. I bought into the game as skipper of one of his ships.

The Third Expansion was to be into a region of space which had been scouted thoroughly by the Interstellar Patrol. The examination had convinced the Commander of the Patrol that the planets in the region would supply a great wealth of minerals and a vast expanse of colonizable land area. Thirty planets suitable for colonizing had been found in the region of the Second Expansion. These were becoming crowded and depleted of minerals, after 1550 years of colonization, and the people were beginning to call for the opening of new territory. A hundred years of

study and planning had been required before the decision was made and the preliminary announcement published. Of importance in the decision had been the absence of intelligent life which might menace the colonies, and the wealth of the colonizers, proximity to other region.

ONCE THE announcement of the Third Expansion had been made, elaborate precautions were taken by the Interstellar Patrol to ensure that no ships could enter the region before the stated time. These were necessary, since early arrivals could scout for the best planets and lay claim to them.

Zorre had circumvented this quarantine by locating men who had previously been in the region with the Interstellar Patrol. During the first gathering of the ships' captains he discussed this with us.

"Gentlemen, each of you has been sworn to secrecy concerning this meeting and all plans of our organization. I say 'our organization' since each of you has invested a considerable sum to join this enterprise. In my earlier talks with you, individually, I was able to persuade you that my plans were worthy of your investments, but let me sum up briefly those plans again.

"I have been able to hire a number of former Interstellar Patrol officers, who are familiar with the section of

space allotted to the Third Expansion. These men are listed as either dead or retired by the I. P. The retired officers, although under restrictions, were able to furnish us with considerable information. Those who are considered to be dead by the I. P. are, of course, working with us on the ships; some of them are among you as captains. I might point out that considerable expense was involved in the furnishing of evidence to prove their 'deaths' to the I. P. It is planned that each ship will have at least one of these men aboard to advise and to aid in navigation.

"Upon analysis of the data supplied by our informants, we have picked the 20 planets which are best suited for colonization. Each of you will be directed to a different one of these planets. As you know, the first ship to reach a planet has title to it. Since our ships are as fast as any available, and since you will know exactly where to go, I feel certain that our venture will be very successful and very profitable indeed. Now to work."

A SHORT but powerfully-built man, Mark Zorre had spoken with easy confidence; and as he finished, his gleaming—almost black—eyes flicked from man to man. The questions raised were answered with quick, sharp replies. One, in particular, concerning the possibility of smuggling some ships into the

region before the starting signal, was answered scornfully.

"The I. P. has very carefully eliminated that possibility. As it enters the region, each colonizing ship will pick up an I. P. escort ship, which will accompany it to the planet of its choice. The escort ship will then register the ship and planet. Ships which are not so registered will be ineligible to colonize."

Later in the meeting he remarked, "Gentlemen, some of you persist in worrying that, by chance, some ship not in this organization may reach your particular planet prior to your arrival. Perhaps it will allay your fears if I inform you that I have yet an ace up my sleeve which will eliminate such a possibility. The method, however, must remain my secret until the day before the starting signal."

DURING the months that followed, there were many more meetings; and during the last hectic weeks, the meetings were held daily. Although this "ace up the sleeve" was mentioned often, no further details could be obtained from Zorre.

Finally, all of our ships were loaded with passengers, crews and supplies; they were positioned with more than 1000 other ships in the staging area on a barren planet. It was a sight to stir one's soul. The hundreds of ships were scattered over the surface of the

planet, waiting to pounce into space and open a vast new volume of the universe to mankind. The bustle of preparation activities had ended; a calm settled over the planet. Now men sat thinking of their approaching flight and dreaming of the future it might bring them.

The captains of our group of ships gathered at our final meeting before the starting signal, and Zorre spoke, "I presume that you have all received today your identification plaques from the I. P. These are to be turned over to your escort ship at the Third Expansion region, as proof that you had not left here before the starting signal. I caution you all again against attempting to slip away before the prescribed time. My contacts in the I. P. inform me that the precautions taken to guard against such attempts are more than adequate.

"NOW, LET me give you your last, and most important, instructions and explain them. Many of you have objected to the positions which you were ordered to take on this planet. Some of you have your ships pointed directly away from the target region. In fact, all of you are ordered to rocket away from this planet in the direction 180° away from the target region! You will follow that course for three hours, and then take the course outlined on the space maps which I

will now pass out to you."

A low rumble of voices spread through the room as the maps were received and examined, but the room became very quiet as Zorre spoke again.

"There is not much time before you must leave for your ships, so I will outline very briefly what is to happen.

"Some of you may have heard reports of a young scientist in the First Expansion region who claimed that he could devise force-fields to bend light rays. That scientist, Dr. Dargan, has been aboard my ship for the past year, and we have tested his ideas and apparatus most thoroughly.

"Of course, the theories of the refraction of light, and the deflection of light by gravitational fields, have long been known; but our experiments have shown that the invisible field projected by Dargan's apparatus can deflect light more effectively, and over greater distances than ever before experienced.

"In a way, one might say that the apparatus pulls the rays of light toward it like a magnet pulling iron filings. To an observer outside of our spaceship, the light source then seems to be closer to the line of direction to our ship than it actually is. I fear that I am not capable of explaining it more scientifically, but I can assure you from personal observation that it works.

"**A**T THE SIGNAL tomorrow, my ship, with Dargan and his apparatus aboard, will take off in the direction of the new expansion region with all of the other ships, except yours. By staying to one side of the group of ships, and making use of the light deflector, I shall guide them off course. *Your* course has been calculated to take you around us, out of range of the deflector.

"I promise you, gentlemen, that it will be weeks after your arrival in the region before any other colonizing ships arrive."

Before the meeting adjourned, a number of the captains attempted to learn more about the deflector, but Zorre professed ignorance concerning the principles involved.

Finally, I asked, "What if Dr. Dargan refuses to play the game tomorrow?"

Zorre grinned. "But he doesn't even know that tomorrow is departure day for the Third Expansion. He has been busy inside the ship calculating the results from our last trip and redesigning for more power; he thinks we are going up to test the new design. Since his laboratory has no viewing screens, he won't know what happened until after the trip when he examines all of the recorders. His main recorders, which he observes during the flight, register only the deflection of stellar light. He depends

on us to look out for other ships from the bridge."

He assumed a more serious air, "No, I don't believe that I would trust Dr. Dargan to play the game. I fear that his very intriguing ideas must die with him after the trip, before the I. P. learns of them."

SHORTLY thereafter, we wished each other "good flight" and hurried to our ships. The final course data had to be fed into the control devices in the few hours before the signal for departure. The light from the stars would then activate the steering devices and guide us to our destination, according to the course so set.

As I worked on the data, I thought of those other ships which would be guided away from the colonizing region by the deflected light rays. If one could not depend on the light of stars, how was one to navigate in space? Even visual checks on their instruments would not help. I suspected that the instruments would begin to break down after awhile, under the strain of analyzing the deflected light.

THE NEXT morning, the prescribed signal was given and 1,110 ships blasted off. The 20 ships of Zorre's organization headed in one direction, and the 1,090 other ships rocketed off in the opposite path. If anyone noted our odd departure direction,

they probably attributed it to some regrouping plan.

We saw no other ships until we reached the Third Expansion region and contacted the I. P. ships; we learned then that we were the first to arrive. According to plan, we began the colonizing of the best planets.

When the other ships arrived in the region, they spread out to seek colonizable planets. Some of the ships, after months of exploring, wherein supplies were nearly exhausted, had to settle on planets already occupied. There the passengers, crews, and officers were forced to hire out as workers. It later was reported by the I. P. that a total of 103 planets were colonized by the people on the 967 ships which reached the region and landed safely.

It was not until some months after our landing that we heard of the catastrophe which had occurred during the first day of the Expansion. Only a few of Zorre's group were able to guess the full story of that day's happenings.

ACCORDING to the account, all of the navigational controls began to misbehave; then the ships of the huge fleet began to jam together into a small volume of space. Ships had side-swiped one another; and faster ships had run into slower ones.

Apparently, the changes made by Dargan in his deflector had made it much more powerful than Zorre—and possibly Dargan, himself—had expected. All of the spaceships had been directed by their stellarlight guidance controls towards Zorre's ship, since the light had been curved in that direction. Finally, two of them cracked into Zorre's ship, destroying it and the deflector. Even after the deflector had ceased functioning, other ships had continued to smash into the wreckage before their navigators could steer them away by manual control.

Later, there was some speculation among the survivors as to whether Zorre had had a giant magnet aboard his ship. Not much credence was given this idea, however. A magnet of such power seemed

impossible; besides, nobody could believe that Zorre would deliberately destroy himself. There had been no survivors from his ship.

Almost all of the surviving ships had damaged guidance controls; several days had been required to get them in proper operational condition again, so Zorre's promise that we would have plenty of time to reach our planets before the others arrived had been fulfilled.

If Mark Zorre had lived, he would have been half owner of the twenty wealthiest planets of the Third Expansion. I suppose that was not the first time a gambler was destroyed for trying to add an ace from his sleeve to a winning hand; but I doubt if the stakes were ever higher.

—————★—————

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PARADOX

LOST

by Brent Howell

The social scientist was a scoffer—he was afraid that the time machine would work...

THEY CAME to scoff, encourage and warn.

The scoffer was first to arrive. He was a philosopher from Harvard University, or perhaps Yale.

"We have very little time and almost no patience for scoffers at the moment," said the inventor of the machine, turning a dial.

The philosopher smiled, "According to the newspapers, you have all the time in the world."

The inventor laughed, and so did Triton Standish, the world's first time-traveler; so did the philosopher.

"No," said the inventor. "Actually, this machine is not capable of fine adjustments; fifty-year intervals are the best it is capable of. Next year's model may be a little better.

Everything in the room, except the massive time machine, quivered from the blast of the philosopher's laughter.

"I came to scoff at a couple of scientific fools!"

Both scientific fools looked up. Triton said, "I'll recommend a scoff medicine."

Then the scoffing began. "Just what," thundered the philosopher, "are you trying to prove?"

If time travel is possible, if it is ever discovered in the future, then why have no time-travelers ever visited us? That's a good question, and the usual answer is that this proves time travel's impossible. But there may be a simpler answer...

NEITHER fool answered. They were not trying to prove anything. The inventor merely wanted to give his invention a test; the time traveler merely wanted to see the year 1960 through his own eyes, in order to check the accuracy of historical accounts of it.

Ignoring their silence, the philosopher launched his attack on the project. "In the first place, your project is impossible. Common sense should have told you that, before you started this foolishness."

The inventor turned again to his dials, and the time traveler lit up a cigaret.

"But I am willing to assume, for the sake of scoffing, that your machine will work, and that this young historian will be timed into the Twentieth Century. So what? I've heard some stupid claims from reputable scientists that your trip is going to shed some scientific light on the nature of time."

The philosopher paused long enough to spit seven feet across the room onto the time machine. "Ridiculous!"

The inventor stopped twiddling with the dials. He sighed.

"I suppose you're going to tell us that what Triton Standish does while in the twentieth century will change the development of history."

The philosopher spat again.

"Nothing of the blasted sort! If anything changes, no one will notice it, because everybody will be already adjusted to it. Any first class fool ought to be able to figure out that consciousness and memory, as well as events, would be affected."

He laughed again, and this time even the massive time machine trembled. "Fools! Nobody would notice the difference."

Triton flipped an ash from his cigaret. "That figures," he admitted.

"So you boys tell me, please, what scientific value your excursion is going to have. Don't bother; I'll tell you: none at all."

THE INVENTOR looked over his shoulder at the philosopher, wondering whether the scoffing was finished, and whether the man was going to leave. After all, no one had invited him.

"Any second class fool ought to be able to figure out that if Triton Whats-his name was not in the Twentieth Century, he was not in the Twentieth Century and never will have been," the philosopher mocked.

The scoffing was not over and the uninvited man was not about to leave. "Furthermore, any third class fool ought to be able to figure out that when this world was in the Twentieth there was no

Twenty-second Century, and therefore no Triton Whats-his-name."

Triton shifted his feet uneasily, and wondered whether he should point out that some philosophers had long held the opinion expressed in the words of the poet Fitzgerald, "The last day of reckoning shall read what the first dawn of creation wrote." He decided against it; he was on unfamiliar ground when he argued philosophy.

"But I shall assume," continued the visitor, "that you are a couple of fourth class fools. Then you ought to see that if this impossible thing happens, the world's history will end up in a two-century circle. Now will you please explain the scientific value of that?"

He laughed again; so did the inventor, and so did the time traveler. After awhile, all three men became aware that there were four voices laughing.

THE FOURTH voice belonged to the encourager.

"Utter fallacy. Utter fallacy," said the fourth laugh-ter.

The other men did not recognize him at first.

"You don't recognize me," he guessed. "I am a mathematician and a fifth-class fool. I came here to form a one-man cheering section; I believe this experiment may have ex-

tremely valuable scientific value."

The philosopher spat, this time missing the time machine and hitting the inventor on the top of his bald head, "What," he demanded, "is utter fallacy?"

The mathematician took out his slide rule. "It is utter fallacy to assume," he said cheerfully, "that our scientists know all there is to know about anything, including the nature of time. It is probably fallacy to assume that anybody knows anything about anything."

The philosopher recognized his enemy now. This was the man who had written a book charging that philosophy is only a "vague branch of mathematics made up for minds incapable of deep, prolonged and thorough thinking."

"For centuries," continued the mathematician, "the best thinkers believed that time was not a dimension in the sense that length, width and depth were dimensions. Time was held to be an unchangeable measure of fact, defying control; it was something to be dealt with in a different manner than the other three dimensions."

He consulted his slide rule idly. "Three-dimensionally speaking, you are free to go where you want to go, subject — to some extent — to gravity and other hindrances.

But with respect to time, you are a prisoner. It runs in only one direction and nothing can be done to reverse that; this was the viewpoint of most thinkers through the ages."

THE INVENTOR turned to his dials again, setting one for 1960. Maybe, he thought, the chatter was concluded and both intruders would step out into the hall to argue.

"But," continued the mathematician "some scientists today think that Time may be just a dimension similar to the other three, the difference being that man does not have free use of it."

The inventor snorted. "Up to now," he added.

Back in its sheath went the slide rule. "I hope that your invention changes that situation," the mathematician said with a smile.

One sneer followed another across the philosopher's face. He turned his back on the mathematician. "What do you think will be proven," he said Triton What's-his-name's successful trip to 1960?"

The mathematician's smile faded. "I have no strong conviction on the subject. I am open-minded. I believe that this young man's influence on the past may furnish us with Time data that we would not otherwise have."

He slid his slide rule into his hip pocket and patted it for reassurance.

SILENCE fell over the room, and three of the men watched the inventor consult charts, checking his dial readings against them.

As if in answer to another question, the mathematician spoke again. "The young man may be catapulted into a 1960, instead of into *the* 1960 of recorded history—in which case we may find ourselves living in two simultaneous time worlds, with some things being both present and absent. It would be a fascinating world to live in, would it not?"

The philosopher scored a direct hit on the time machine, wiped his chin and snarled.

After half a second had gone by, the four men became aware that the snarling was a duet rather than a solo.

The doorway was occupied again, this time by the man who came to warn. "You're not going to go through with this madness, are you?" he demanded.

The philosopher scowled at the new arrival. "I know who you are," he said. "You're Whoozit, the great social so-called scientist."

The new arrival's face was cut deeply with anger lines. "Yes, I am a social scientist; I am here in the interest of humanity, freedom, democracy and all the rest of the worthwhile causes in human existence."

THE SOCIAL scientist cracked the knuckles of both hands. "Stay out of 1960," he commanded in a voice as low as a rattlesnake. He glared at Triton What's-his-name.

The inventor looked up from his charts. Nobody appeared to be leaving.

The social scientist took a deep breath and raised his big right fist. The philosopher fell back one step. The mathematician took refuge behind a table.

"Let me tell you fools something," the social scientist bellowed, "the results of this idiot's trip to 1960 will have far-reaching effects." He glared at Triton, then opened the palm of his clenched left hand, took careful aim and struck it mightily with his right fist.

"These effects are going to reach over a 200-year span of time and smack you right in the face! Use your head, you skinny imbecile! Do some thinking now, or so help you history!"

No one thought to interrupt, but the inventor went right on with his checking.

The social scientist shot a withering glance at the philosopher, who backed up again. "In the entire history of the world you could not have picked out a worse year to louse up. 1960 was the year when this nation came within a hair's breath of losing its

vestige of civil liberties. They almost died out, with public approval."

His hands closed about empty space in a choking gesture. "Innumerable church ministers had become atheists; police officers were stealing, raping and murdering in all the cities; everyone was in uniform, and all human behavior was regulated by government code."

TRITON knew this story well. He had studied every available source of information about the mid-twentieth century. He listened raptly to the social scientist.

"Only a freak stroke of luck saved this country," the social scientist said. "Only a stroke of luck!"

The inventor continued his checking.

"One man held out against the overwhelming dictatorship: One man in the entire country! He was arrested on July 4, 1960, for quoting aloud from the Sermon on the Mount. They crucified him, literally, on a special government television program as an example to other Americans."

A WE SEEPED into his voice. He relaxed. So did the others. "Maybe it was the lighting, maybe something else. Anyhow, when they nailed this man to the cross, he just happened to look like Someone Else; a wave of reli-

gious feeling broke over the nation and cleaned it up."

The inventor, finished with his checking, stood up.

The social scientist went on: "Now, I ask you, young man, do you really intend to take a chance on lousing up the whole production?" He leaned against the door frame for support.

Triton smiled and lit another cigaret. "Look, sir," he said. "I'm merely going as an observer. I will be just one more cipher in the sum total of history. Most persons, you know, have no influence on the course of history. Very few have even a slight influence."

The social scientist growled and rubbed his hands together.

"Buddy, have you ever heard about the lost nail and the lost shoe and all that? You're some kind of a junior that little incidents sometimes historian. You ought to know that little incidents sometimes have big consequences." He stared murderously at Triton's jaw.

TRITON knew what the social scientist had in mind, aside from the impulse to punch somebody in the jaw. He was thinking about how a mis-translation of one word extended World War II, resulting in the unnecessary deaths of thousands of soldiers and civilians. He was

thinking of numerous important elections being lost or won by a one-vote majority. He was thinking of a neglected cold, which caused the death of a man who could have prevented a world war, which caused the deaths of the total populations of three nations.

"I promise you," Triton said soberly, "that I will not vote, or lecture, or run for office, or join the army, or give anybody a cold."

The inventor opened the door to the time machine. "Step in, Triton. Time's almost up."

Triton climbed into the machine and flipped his cigaret out the window of the lab. Everyone was silent. Then the inventor reached for the switch. The spell was broken.

"It can't work," the philosopher insisted.

"Good luck," said the mathematician.

"Fool!" said the social scientist.

TRITON disappeared before their eyes.

But from his point of view they disappeared, along with the laboratory and the whole world. Five minutes passed. Then the world came back, the world of 1960.

He found himself standing in the path of a speeding automobile.

No time to move.

In the half second of life

he spent in the Twentieth Century, Triton Standish remembered some things he had read in newspapers, recovered from time capsules. Little items about unidentified dead bodies found now and then; he knew he was about to become one of them.

And in that instant he formed his own conclusions about the time paradox.

So did the driver of the car which ran him down: "Honest, officer, that crazy pedestrian just came out of nowhere and I didn't have time to stop."

INSIDE SCIENCE FICTION

(continued from page 76)

ORION: EDITED by P. J. Enever, 97 Pole Hill Road, Hillingden, Middlesex, England. 15¢ for a sample, with a letter of comment requested as the price of future issues. Paul Enever, who's been around the s-f field almost since its inception in magazine form, edits an attractive little *m a g a z i n e* which, at times, appears to be a little more serious than its contemporaries. Articles like Daphne Buckmaster's "That Elusive Sense of Wonder" are often features. Mrs. Buckmaster, in a fervent plea for a return to the "good old days" says: "It used to be the ideas we were eager for; the possibilities of Utopia, a preview of what it might be like on other planets, and the plot was merely a vehicle to carry these ideas... What is even more to the point is that the authors themselves had a sense of wonder." This is all quite true, but not completely original. It seems that Sam Moskowitz once briefly touched on this subject. Book

reviews, movie reviews, and a bit of humor usually round out the quarterly issue of *Orion*.

SCIENCE FICTION NEWS: 10¢ for a sample from Graham B. Stone, Box 4440, GPO, Sydney, NSW, Australia. This is a very attractive multilithed bimonthly, slanted more toward the reader and collector. The issue we have here features an article on Ray Cummings; photos of forthcoming issues of Britain's prozine, *New Worlds*; general news of professional magazines; Hollywood film flashes by the omnipresent Forrest J Ackerman; a graphical survey of the years books published in GB, and an obituary, supplying background information on Bob Olsen, Fletcher Pratt, F. Orlin Tremaine, Bela Lugosi, Ray Cummings, and Professor A. M. Low, all of whom passed on recently. In content, this publication is comparable to Taurasi and Van Houten's *Science Fiction Times*.



Robots' Gambit

by Richard
Wilson

They were the ultimate in chess players, but they knew some human moves, too!

THE TALL young man and the robot walked side by side down the path from the factory. The young man worked there; the robot had been manufactured there.

The young man saw his fiancée waiting for him at the curb in her convertible. "Hi, Carol," he called.

"Hello, Mike." Carol Mercer was twenty-four, her hair the color of autumn leaves and her voice crisp and bright. "Who's your friend?"

"He's for Dad," said Mike Hobbs. "Birthday present for the old gentleman. Got room for three in the front?"

The robot stopped, with Mike, at the curb. He stood there expressionless, his eyes looking at Carol, his slim frame dressed neatly in a blue serge suit. The face was that of a man of sixty, and it had a thick white moustache which matched the shock of hair on his hatless head.

"You bought that?" asked Carol, incredulous. "You bought a *robot* for your father?" Her eyes flashed angrily. "Are you out of your mind?"

"But I got him wholesale. I had to get him for Dad after your father bought Mr. Morphy. If there's one thing Dad likes to do, it's to keep up with the Mercers."

"The whole thing is ridiculous," snapped Carol. She tossed an auburn mass over her shoulder. "Just because

my father gets a mechanical monster to play chess with, your father doesn't have to have one. He could have borrowed ours."

"Oh, he could, could he? Well," said Mike, "it just so happens that your father won't let anybody else play with Mr. Morphy. In fact, Mr. Mercer won't even play chess with my dad any more. Says he's too busy proving something with the robot—something about a robot assimilating all the best strategy of his opponent until he can't be beaten by the human being who trained him."

"I think the entire matter is too childish to discuss," said Carol Mercer. "Two mature, retired men in their prime of life caring about nothing but chess, chess, chess. And now you aid and abet the mania by buying another stupid robot for—for just exactly what it would have cost us to put up our pre-fabricated house. Really, Mike, you don't have any consideration for me—for us. If that's all you think of our engagement you can consider it off!"

CAROL BURST into tears, but checked them instantly. She took off her glove and then her engagement ring. She handed the gleaming circlet to the robot. "Here, robot," she said. "Obviously he thinks more of you than he does of me."

The robot, reacting as he had been trained, automatical-

ly extended a hand and let the ring fall into his pink, flesh-oid palm.

"Carol, wait," said Mike. But she put the car into gear and sped off, leaving him and the robot standing on the sidewalk.

Mike took the ring from the mechanical man and stared at it for a moment before stuffing it into a pocket.

"Women!" he said. "They're one hundred per cent pure unadulterated emotion, without an iota of logic."

The robot, who was one hundred per cent logic, without an iota of emotion, adapted his response to the situation. "You're right, sir."

Mike hailed a cab. The driver watched his two fares get in. He leaned back and whispered to Mike: "That gentleman with you, mister, isn't he a robot?"

"Yes."

"That'll be a dollar extra, then. Licence bureau ruling. Says we got to consider robots the same as trunks."

HENRY HOOBS was deep in a chess problem when his son and the robot walked into the study. Hobbs was lean, bald, hawk-faced and, at the moment irritable. He was muttering to himself.

"Mercer solved this one in twenty minutes, did he? When I've been at it for an hour? The prevaricating old rascal! More likely his me-

chanical man solved it, if anyone did." Hobbs moved a knight tentatively, then banged it back to where it had been. "Twenty minutes, indeed!"

He hadn't seen them come in.

"All right," whispered the son. "Now!"

Two voices, one human and one mechanically tinny, began to sing "Happy birthday to you, happy birthday to you, happy birthday, dear father, happy birthday to you!"

The older man sat back in his wheelchair and blinked his eyes rapidly. Then he took out a handkerchief and honked loudly.

"My dear Michael. Thank you. And thank you, too, sir." He put on his eyeglasses and held out a hand. "Forgive me if I don't get up. Damned doctor says I have to stay put. Don't believe I've had the pleasure, sir."

The robot, reacting as taught, bowed, ignoring the outstretched hand. "Your servant, sir," he said.

"I beg your pardon? What's all this ceremony nonsense? My name's Hobbs. What's yours? Sit down, sit down; pull up a chair for the gentleman, Michael."

"His name will be up to you, Dad. He's a robot. And he's yours to wheel you around, or fetch down books, or cook, or send to the store or—" he paused slyly—"maybe you could teach chess."

The elder Hobbs was overcome, but his excitement kept the emotion momentary.

"Son," he said, "you couldn't have done a nicer thing. Of course I'll teach him chess. Now, Mr. Robot, we'll have none of this master-servant foolishness. You're as dignified a looking gentleman as ever I've seen, and it will be a pleasure to have you with us. Welcome to our home. Now, as for names. Mine is Henry, and yours—yours will be—let me see—yours will be Jose. We'll shake hands on that, Jose."

THE REAL old gentleman and the synthetic one clasped hands. Hobbs was aglow, and Jose's face broke into a warm, almost unmechanical smile.

"Jose Capablanca, you know," explained Hobbs to the robot. "The Cuban chess genius. A much greater man than that mechanical Paul Morphy, that flash in the pan that Old Mercer named his robot after."

"Mr. Mercer has this theory you heard Carol mention, Jose," Mike said to the robot. He stopped for a moment at the thought of the girl, then pushed his personal problem to the back of his mind. After all, it was his father's birthday. "About a mechanical chess player being able to outplay the man who taught him after the robot had absorbed the rudiments of the game.

Well, Dad and Mr. Mercer have been playing each other for years, and there's never been a clear-cut decision. One of them will win occasionally, and then the other, but they're about evenly matched."

"I don't like to be immodest, son," put in Hobbs, "but I do think you overstate the case for Old Mercer. He has a certain amount of flair but, really, he's not in my class."

"That remains to be proved," said Mike. "The way to prove it conclusively would be for you to teach Jose everything you know about chess and then match him against Morphy, who's been taught everything Mr. Mercer knows. Wouldn't that do it? The robot who won that match would show beyond a doubt that his teacher was the better player."

As Mike paused, Jose the robot felt his wheels of logic spinning inside him and made the perfect move. He sat down opposite Hobbs.

"Would you teach me the game, Henry?" he asked. "I'm very anxious to learn."

Hobbs slapped his knee and chuckled. "Delighted, Jose, delighted." As he set up the pieces he said to Mike: "Wait till Jose tangles with that Morphy. It'll be murder, son—sheer black-and-white murder."

course, bent over a chess board. His heavy forehead was creased with more than the usual number of lines and his mouth was set in a pout that was out of place in a man of his years.

Sitting across from Mercer was the mechanical man he had named for Paul Morphy, the nineteenth century chess wizard. The robot was calm and relaxed. He had just moved.

"An Alekhine combination, by Jupiter!" said Mercer. "I recognise it now. He used it against Tylor at Margate in—let me see—1937. Where the devil did you pick that up, Morphy?"

"From you, sir," the robot replied. He had been made in the form of a heavy-set man, grey-haired and comfortable-looking. "You've taught me everything I know about chess."

"Yes, yes, of course," said the man. "But it certainly is a shock to see something like that coming back at you... Carol, my dear, hello. Why, what's the matter?"

"Oh, father, that Mike is a beast. I hate him!"

"What's he done, the cad?"

"He took all the money we were going to use to build our house and spent it—simply threw it away!"

"But your house is all bought, Carol. The pieces are all stacked in the old barn out back. Finest pre-fab outfit I ever saw. All you have to do is hire the assemblers to put it

CAROL SLAMMED the door behind her. Her father was in the library, of

up when you're married."

"We're not being married." Carol dropped to her knees and put her head in her father's ample lap. "I gave him back his ring," she sobbed. "I hate him, the selfish brute!"

"Now, now." Mercer patted her auburn head with a clumsy hand. "It can't be as bad as all that. What exactly did he do that was so terrible?"

"He took all that money and—" she glared at Mr. Morphy—"and bought a robot. For *his* father to play chess with. The fool!"

MERCER considered this. "Why, that addle-pated old copy-cat! Never had an original idea in his life. Shows up in his chess game, too. Strictly an academician, Hobbs is. A plodding, long-winded player without invention. So now he's got a robot, has he? Hmm."

"Oh, you're all alike," cried Carol. She flung herself to her feet. "You and Mr. Hobbs and Mike—and of course the robots, who never were taught to do anything else. Chess, chess, chess. That's all you ever think about. Nothing else matters to your narrow souls!"

"Now Carol, you once were fond of the royal game. I remember what fun we had together, when your mother was still alive, teaching you the moves."

"That was when I was

twelve, father—half as old as I am now. By the time I was thirteen I was sick and tired of the stupid game. Gambits, combinations castling, *en passant*, Philidor, Reshevsky! It's a foolish game for foolish people who could be doing important things with their energy. Check! Checkmate! Phooey!"

And she kicked Morphy on his simulated ankle. The robot made no sign.

"Carol!" said her father, sharply. "Go to your room. You may come down when you've stopped being a child. The idea of a grown young woman acting this way over a silly lover's quarrel!"

"Now, Mr. Morphy, we'll see about this little combination of yours—or mine, or Alekhine's, or whoever it is. I'll just take your queen, you see, with my rook. Weren't expecting that, were you?"

"On the contrary, Mr. Mercer," said the robot. "I had planned it. My move is rook takes knight—check! Then I think you will see that the end is inevitable."

Mercer confidently lifted a hand to remove the offending white rook with his king, but then stopped. He frowned. He glowered. He saw his doom. He gave a little strangled cry of frustration.

And he kicked the robot on the ankle.

"I WILL not go," said Carol to her father. "The

whole thing is stupid, ridiculous, fantastic. Two robots playing chess against each other to decide whose master has more right to his vanity. What nonsense!"

"I have explained to you, Carol," said Mercer, "that we require two judges for this tournament. Michael will be one and you will be the other. Old Hobbs and myself are disqualified because in effect, we ourselves will be playing, with each robot using the best of what it has learned from each of us. It will settle once and for all the question of who is the better player—me or Hobbs. Not that I have any question in my mind, but I've got to convince old Hobbs."

"I will not see that Mike Hobbs. I haven't seen him for two months and I will not see him now."

"But for two months you have been miserable, young lady. Mike has called; he's sent flowers, he's written and wired and acted in every way like a gentleman. You love him; you know it and I know it. But if he isn't convinced of it very soon, you'll lose him, and then you'll have real cause to be miserable. Morphy, Miss Mercer's coat, please."

The robot had it ready.

"I won't go," said Carol, putting her arms into the sleeves. "It's ridiculous. Do I look all right, father? What nonsense—a robot chess tournament! Is my mouth on

straight? I'm only going to please you, father, you know."

"I know, my dear. Is the car here or shall we take a cab?"

MIKE HOBBS opened the door. "Carol!" He moved to take her in his arms, but she pushed him away with dignity.

"I'm here in an official capacity only, Michael. I'm to be a judge at this adolescent tournament, to see that your father's robot doesn't hide any knights up his sleeve."

The study of the Hobbs home was crowded. Officials and selected members of the local chess club; the editors of a chess magazine; photographers, and a wire service reporter were waiting for the mechanical battle to begin. It promised to be a short contest, as chess went, because the robots would be playing with clockwork precision, moving their pieces almost instantaneously on the basis of their stored-up knowledge of the complicated game. A television camera was trained on the board and the empty chairs at the table, and a motion picture camera was ready to record the game and project it later in slow motion so it could be studied by slower human minds.

"Carol," said Mike, "please take back the ring." He was talking to her in a quiet corner of the room. "It's been lonely without you. Let's forget that silly quarrel. I love

you, Carol. Don't you love me?"

"The man I loved was a considerate, intelligent man who was going to marry me and move into a house of our own. He wasn't the man who let the bits and pieces of the house gather dust in a barn while he spent all the money on a robot. I don't see how we can live in a barn, with a house all in pieces."

"We'll have that money again. I've already saved a lot toward it and in another few months we'll have enough."

"Another few months! Maybe in that time you'll be able to find another girl. It won't be me—you robot fancier!" She tilted up her nose and walked into the hubbub at the centre of the room.

THE WIRE service reporter was talking to Mike's father.

"As I understand it, Mr. Hobbs, neither robot has played against anyone but his master—the so-called Morphy against Mr. Mercer and Capablanca against you?"

"That's correct. In addition, the robots have not been allowed to read any books on chess. They read amazingly well, you know, never forgetting a thing. My Jose has become an excellent chef on the basis of his reading of cookery books."

"I see," said the reporter. "And so, if the robot Morphy

wins the tournament, Mr. Mercer will be adjudged the champion, and if the robot Capablanca wins, you will be the better man?"

"Exactly."

The mechanical contestants sat down at the board, Morphy's heavy-set frame filling the chair and Capablanca's wiry manufactured body alert on the edge of its seat.

Carol, Mike and their fathers took their places close to the contest table. The cameras began to grind as Jose Capablanca, the host robot, shook a black and white pawn in his cupped hands to determine who would have first play. Morphy won the white and opened with his queen's pawn. Capablanca went into the Dutch defence. Quiet settled over the room as the play proceeded with superhuman rapidity.

The robot Morphy won the rapid-fire game with checkmate in fewer than two dozen moves, and the audience applauded.

"That's my boy!" cried old Mercer.

THE SECOND game got under way, Mr. Hobbs' robot playing white this time. The play was too fast for human minds to follow completely, and at the end of ten minutes Morphy tipped over the black king. "I resign," the robot announced.

Hobbs beamed.

"I protest!" shouted Mr.

Mercer. "He should have played to the finish."

His daughter and Mike, as judges, overruled him.

"Apparently it was impossible for your robot to win, father," Carol said. "It went too fast for me, but the films undoubtedly will show why he resigned. Be a good loser, Pop."

Mercer grumbled, but was secretly pleased by the interest with which his daughter—who professed to hate the game—was following each whizzing move.

The tournament went on. Game after game was played.

Mercer's robot won the third and fourth. The fifth was a draw. But then Hobbs' robot cut into Morphy's lead and pulled ahead. Capablanca took a two-game advantage, held it through another draw, then won the decisive game.

The entire tournament had been played by the robots in less than three hours.

"We won, Dad!" said Mike. "I knew we could do it."

HOBBS waved away the congratulations. "It was very novel and interesting. The robots must play a return match sometime soon, Mercer. But I'd much rather play a living game with you, old man. One we can relax over, with cigars and a drop of port. The lightning chess makes me dizzy. What do you say, my friend?"

Mercer struggled to be gracious and succeeded. He smiled and held out a hand to Hobbs. "Of course," he said. "But your Capablanca is a better man than my Morphy. No doubt of it."

The old man swallowed, then said with an obvious effort: "And you're a better player than I am. I always knew it, but pride kept me from admitting it. Yes, I'd like a man-to-man game. How about tomorrow night?"

Carol shot a fond glance at her father. "The old boy's really a good sport, deep down," she said to Mike. She drew him away from the group of professional chess enthusiasts who were clustered around the robots, examining them and talking to their owners.

She squeezed Mike's hand. "I think I can be just as good a sport about something much more important than chess—important as that is to our Pops. Seeing your father tonight reminded me that he uses a wheelchair. I'd got so used to seeing it that I'd forgotten. And of course he had to have a robot—for a lot more important reasons than my father got one."

"Darling," said Mike.

"I'm sorry I made such a fuss about the house," said the girl. "We'll have it put up whenever you say. I can wait a few months because I know we'll be spending the rest of our lives in that house. If"—

Carol added—"if you'll let me have the ring again."

Their kiss was interrupted by the flash of a photographer's camera.

"Perfect," said the Press photographer. "When Judge Meets Judge. Or Robot Chess Match Doesn't Lack Human Element. Which caption would you prefer?"

"Either one," said Mike, blinking. "So long as the picture goes on the page with the rest of the wedding announcements."

"WHERE ARE the robots?" asked Hobbs. "I haven't seen them since the crowd left."

"They were in the room with us for a while," said Carol. "They were sitting off in a corner sort of chuckling to themselves while Mike and I talked about our house. We decided we want it on the opposite corner of the property from your house, father."

"Fine, fine," said Mercer. "But where are the robots? And can they communicate with each other?"

"Of course they can," said Mike. "As Carol said, we were talking and looking through the instructions for assembling the pre-fab. The robots were still there when we left to join you here in the living room."

"Well, I was just in the study and they're not there now," said Mercer.

Mike and Carol went

through the house, room by room, but the robots were gone.

"You don't suppose they ran away?" asked Hobbs. He was nervously trundling himself back and forth in his wheelchair. "Perhaps off to the chess club? Or off to a carnival to play on exhibition? They seemed to like the touch of publicity they got tonight."

"They wouldn't do that," said Mike. "It's not in their makeup, and I mean literally. They're made to serve their masters to the best of their ability, and they wouldn't do anything to inconvenience them."

"Well," said his father, "they're gone. And where the blazes do you look for a runaway robot?"

THEY SEARCHED the house again, and the grounds, then drove to the Mercer home. The robots weren't there, either.

Mike and Carol looked into the old barn behind the house.

"Mike! Our house! The sections! They've been stolen!"

But Mike was grinning with a glimmer of suspicion. "Come on!" he said. He took Carol's hand and ran with her to the other end of the property.

There, under improvised searchlights, where nothing but a foundation had existed that afternoon, stood a house, completely fabricated. They hear hammering coming from inside it.

"Mike!" said Carol. "Do you suppose—"

Her unfinished question was answered as the hammering stopped and the two robots appeared at the front door.

"Jose and Paul, you clock-work rascals!" said Mike. "What have you been up to?"

"The robots smiled proudly.

"The plans were very complete, Michael," said Jose. "And yours and Miss Carol's wishes were obvious."

"We couldn't help hearing

your conversation," added Paul. "Our ears were made to be very sensitive."

"We hope our service has been satisfactory," said Jose.

"You darlings!" said Carol. "I could kiss both of you, you—you champions! Aren't they champions, Mike, both of them, through and through?"

"Right," said Mike, "my love."

"Now we can be married right away," she said. "Mike—this week end!"

"Check, mate!" said Mike.



The Reckoning



The results have been most gratifying, as ballots have poured in on the November issue, in the forms of voting coupons, letters, and postal cards. All were counted. You rated the stories in order of preference from 1 to 7—but all ties were rated as you listed them. When you disliked a story, it got a rating of 8; when you thought a story really outstanding it rated 0. And here's the way the stories finally came out.

1. Delay - Temporary (De Vet)	2.92
2. Quest (Banister)	3.23
3. Early Bird (Russell)	3.44
4. Why? (Silverberg)	3.60
5. Audition (Arnett)	3.92
6. Pursuit (Smith)	4.11
7. The Heirs (Cox, Jr.)	4.20



THE LAST WORD



All letters are welcome, and all are read carefully. The editor is willing to type an interesting letter that has been legibly handwritten but he pleads with those of you who have typewriters: type double-space if you can *but don't, PLEASE DON'T, use both sides of the sheet*. Because such letters have to be re-typed if I'm going to use them!

REPLY TO COULTER

Dear Bob:

Honest and accurate criticism is bound to hurt somebody's feelings; so if I don't get an occasional outraged yelp like Art Coulter's (*Science Fiction Stories*, November 1957), I think something must be wrong.

Coulter's opening point is good: somebody ought to criticize the critics. But as you say in your reply, sweeping generalizations are not useful; the criticism should be factual and specific.

Coulter makes only two factual allegations against me, and does not support either one by examples. He says that I deliberately distort some books and stories for the purpose of making them sound worse than they are. (I am paraphrasing, and guessing at Coulter's exact meaning; what he said was, "He makes little 'paper' dolls, viciously

distorted out of context, and sticks verbal pins in them.")

Now, deliberately distorting a synopsis, or quoting out of context to give a misleading impression, is to a critic what bringing on the Marines in the last chapter is to a writer: it's too easy. You can prove any point by distortion and misquotation, just as you can solve any problem by a *deus ex machina*. Quoting accurately and synthesizing fairly are hard, fascinating work. Easy jobs do not interest me: I have stuck with book reviewing all this time because it continues to be hard.

It's easy to guess why Coulter thinks I distort: when he reads a story which impresses him as wonderful, and then finds that I've demonstrated serious flaws in it, one of us must be wrong. Either Coulter reads uncritically, or I distort. Ergo, I distort.

Second, Coulter says:

"...If he ever feels forced to praise an author's work, he somehow contrives to do it in a nasty way." Here again, I can only guess at Coulter's standards of politeness. Probably he thinks I should either express myself with undiluted enthusiasm, something like this—

"The Blue Glop was written at the very top of Nudnick's range—a breathtaking display of sustained brilliance... I'm damned if I'll dissect it: read it."

—or, failing that, find fault gently, like this—

"The writing is uneven, and so is the construction. Nevertheless, the historic sweep of this novel is something rare and memorable..." &c.

—To which I can only reply that I do. Both quotations, slightly abridged, and with the names changed (for Nudnick read Sturgeon), are taken from my book, *"In Search of Wonder"*, p. 87 and p. 130.

I give praise unstintingly where I think it's deserved; I condemn gently where that seems to be indicated; and when the author seems to have earned both a lollipop and a swift kick in the pants, the inconsistency does not bother me: I give both.

Damon Knight, "the boil that writes like a man".

CLARIFICATION

Dear Mr. Lowndes:

In the July issue, the usual satisfactory quality of the stories was, for me, quite overshadowed by the letters and your replies to them. However, there is a point that wasn't quite made clear about all fields of writing. In every branch of the art there is good writing and bad—Literature and trash. Since publications devoted to SF are as yet comparatively limited, the two extremes are frequently to be found side by side, and only the seasoned reader realizes this and is able to discriminate. He becomes enthusiastic over the good writing and simply ignores the bad as an evil attendant upon the development of the SF field. Consequently, he is not disturbed by the raucous cries of the Johnny-come-lately critic who judges from too narrow a point of view.

Recent publication of good SF in good magazines of general interest is drawing attention to the fact that a scintillating imagination is no bar to good writing. But we know that the number of potential readers is always going to be severely limited, because of the general lack of imagination, and general unwillingness to take the trouble to learn enough rudimentary

science to appreciate really good SF.

Your editorial was fine and indisputably true, but it was true of all writing. But your comments on the letter from "Outraged Reader" were more than just good. Your item 3 expresses my point of view exactly. I maintain that SF can't live as "just plain fun", or at least it can't live and be worth the time of serious readers and writers. But SF *is* literature if not *Literature* yet. Some day (and I maintain it has already been done), it is going to attract the attention of writers who have great literary abilities as well as the brilliant imagination that the field requires.

All this and the comic strips too for those who like them.

As to Mr. Purdom's letter, he says, "...and I think I've read enough...to form a reasonably sound opinion." Opinion of what? The whole field of SF? Heaven help us! Further, he says, "...if a writer wants to write a love story set against an interplanetary background..." This is exactly the thing that serious SF fans object to. A love story is a love story and no amount of exotic or alien background can make it anything else. Generally speaking, SF fans are not readers of love stories, excepting always the very young ones. And shoot if you must this

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old gray head, but we cannot allow the very young to do to SF what they have done to popular music. Of course, human actions and reactions are the foundations of all good writing, but in SF they must be reactions to things other than the usual ones. And love, as a theme, is something less than unusual.

Again Mr. Purdom says, "I'd like to see science-fiction accepted as part of our literature..." Accepted by whom? It seems to me that if a field of writing is read by people with a reasonable degree of education and culture, which implies that it is written by people of at least fair literary abilities, it *is* accepted. Critics have no power to decide this point. I will stack up the average intelligence of the SF reader against that of the reader of any other branch of fiction, to the chagrin of the critics. Let the critics judge on the basis of style or whatever, but not presume to say whether the theme is permissible or not.

Examine the mass of writing in detective fiction. Heaven knows, there is plenty of rubbish here, but there is a great deal of good writing too.

The remarks by Gene Hunter were too, too true, especially the statement that, "The following isn't strong enough to support the entire field." I am afraid that will always be true.

Much of the above is involved with the insolvable problem of defining the nature of SF. It looks as though each reader is going to have to do this for himself. Though the personal opinion of one reader is unimportant, I would like to offer my idea of it. I consider a real SF story one in which the science (any branch) is an integral and indispensable part of the story. But the science must not violate any *known* laws. This leaves us wide open for "space warps" and time travel and similar ideas of science as yet unknown. This rules out "20-foot termites", though I will admit

such a story *could* still be interesting reading.

But where does it leave stories like Asimov's Foundation series, and, to get closer to home, "The Gardener" by Raymond F. Jones? I'll be darned if I know. The only other word we use is "fantasy", and that seems wrong because, to me, the word connotes the weird, eerie, or uncanny. So maybe if we are to mix these stories together we need a name that will honestly include all the classes. I can't think of one, can you? —Just had another look at "The Disappearing Man": It is one of the tales of the future, but might be said to be a variety of SF insofar as psychology is a science.

The list by Willis Freeman is the result of a lot of painstaking work, but is it worth the space? I don't object to such lists if others like them, but in nearly forty years of

reading SF, I can count on my ten fingers the short stories worth remembering. Many novels, yes, but I don't think that the SF short story has arrived at that stage yet.

If SF is good for nothing else, it is worth its salt because of its value in stimulating thinking about things to which people give little attention, usually. Perhaps these people would do the thinking anyway, but the magazines help these kindred spirits to get together and exchange views. I have been able to meet a number of very interesting people in that way, when otherwise what I fondly call my thinking would have had to be done alone. So, Literature or not, I will continue to be an SF fan because I have to.

F. W. Zwicky, 913 Fourth Avenue, Rockford, Ill.

I don't know exactly what

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Tom Purdom had in mind when he said he would like to see SF accepted "as part of our literature", but I know what I mean when I say anything to that effect. I mean that I would like to see science fiction accepted as a *legitimate, adult, respectable form of fiction by those persons—such as teachers, librarians, anthologists, and critics—who play leading roles in setting the standards and definitions and practices in literary matters.*

As matters now stand, most of such molders of general public opinion, or literary judgments, declare in effect that science fiction is worthless, *per se*—is of interest only to students of psychopathology and to the unfortunates who are addicted to it. Many librarians are more broad-minded: they consider anything labelled "science fiction" *ipso facto* a juvenile, to be placed in the teen-age department. (Whether the book is designed as a "juvenile" has no bearing on the instance.) Then woe to the book labelled "science fiction" which contains any sex, realism, anything "controversial"; anything which might be considered condonation of immorality; anything which might possibly be considered subversive; and so on. The publisher who sells to this market, however sincere his desire to offer

a good product, often has to settle for a story on the basis which, history relates, was used at times to select a presidential nominee: no one knew anything against him! A lot of pretty sad stories are "safe".

I share your reluctance to use the term "fantasy" to cover stories which we feel are in place in science fiction magazines, etc., but cannot be justified on scientific grounds. "Speculative history" might cover the Foundation stories, since just about all the "science" in them is magic. Not that I like the term "speculative history"; "if" stories might be closer, except that this would include fantasy and 20-foot termites, too.

Here is something that *fans* can do; help us work our definitions. We want definitions and terms which would include "future history" etc., stories as "science fiction" but not include giant ants, etc.

As to time travel—such stories are tales of the past, or the future, or both; not travelogues. The time device is just a gimmick, a touch of magic.

Willis Freeman's 12-issue reports are worth the space used in printing them only if a sizeable fraction of the readers find them interesting; I suppose he'll continue to send them in to me, in any event—I hope he will—but whether I

continue to run them in the letter section depends upon what you readers say. So far, the response has been in favor of continuing to publish them.

GIVE-AWAY TITLES

Dear Sirs:

Would you do me a favor? If you are going to print stories (such as "Early Bird") with surprise endings, would you avoid using give-away titles?

I think that "Quest" was a good story. I don't think that "Pursuit" was a good enough story to qualify as material

for a magazine of your reputation.

I would like to see just where Roger Weir gets his belief that it is possible to travel faster than light. According to how I get Einstein, this ain't so. Also, admitting that in the future, the condition that he describes would be true, and only partially true, since no body of planetary size would remove all the molecules from a given area, when you consider the speed of the molecules. Let me elaborate. Since a molecule will travel until it bumps into another, and the Earth is probably losing

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molecules as fast as it picks them up as it travels through space. If that's not clear, look up the Kinetic Theory of gases. Anyhow, I'm disagreeing with Roger.

—Robert H. Aten, *University of Illinois.*

The way I've always understood it, there is no *law* which says nothing, but nothing, possibly ever can exceed the speed of light. All that has been established as fact is that no faster speed has ever been observed, and that, so far, we have no reason to believe, or assume seriously, that anything actually does. I believe that Einstein's formulations

describe what happens to an accelerating body as it *approaches* the speed of light; but do not state that no body can ever equal or exceed that velocity.

My humble apologies if the title to the Russell novelet gave the ending away. I'll admit that I suspected the ending before coming to it, but not on the basis of the title. An editor usually feels indignantly innocent when accused of giving away the point of a story in a title, blurb, or illustration—which just goes to show that he sinned through inadvertence and should be grateful for having his fumbles pointed out to him. As I did, and am. RAWL

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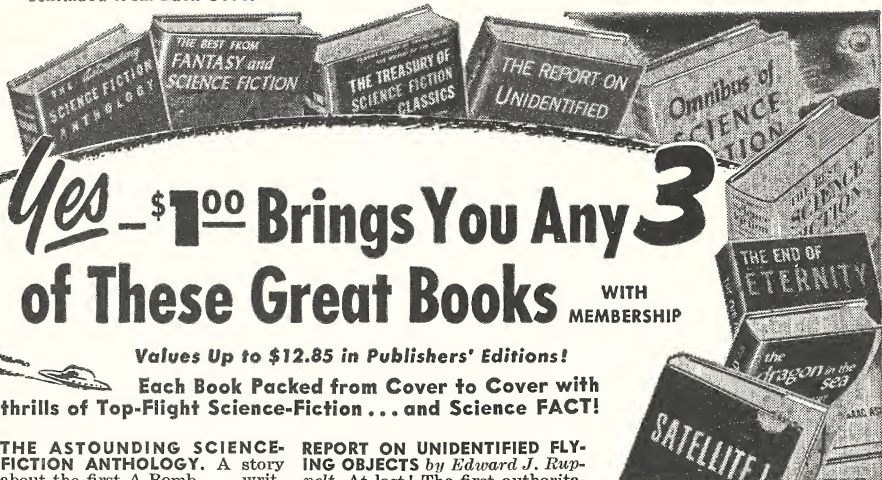
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